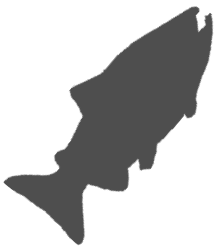

Washington Department of FISH and WILDLIFE

Education Plan

by **Michael F. O'Malley**

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EXECUTIVE SUMMARY

Education is a term that is batted around by many people, each with his or her own personal definition of what it means. For some, education is a brochure, for others it is a video tape and for some it is a formal classroom presentation. To others, education is seen as more of a process than a product; a process that includes a variety of products in a variety of settings.

Education, as embodied in this plan, is a process—a three-step process. Education begins with an **understanding** of the parts of the system under study—obtaining basic information and awareness of an issue. This understanding is further refined through **environmental inquiry**—choosing an aspect to investigate, defining a problem and gathering information. The education process achieves its objective when behavior change is adopted, and individuals **take action** based on their inquiry findings. **Systems understanding, environmental inquiry** and **taking action** are the three steps that form the backbone of this education plan for the Washington Department of Fish and Wildlife.

This plan begins with a brief look at the state of the fish and wildlife resource as it existed at the beginning of the development of this plan. We will then look at current human population trends and needs in Chapter II, to help predict the future human landscape.

Chapter III departs from the traditional needs-assessment process by opening the discussion to the world through emerging electronic technology. Here we will see what the general public thinks our educational needs are.

Chapter IV discusses current educational theories, examples of these theories in action, and how they may apply to WDFW educational strategies.

The foundation of the WDFW belief system (our core values) regarding the fish and wildlife resource is expressed in Chapter V through ethical codes of conduct. The vision, goals, strategies and audiences for WDFW educational offerings are also described.

Chapter VI combines all of the above into three-step educational plans based on systems understanding, environmental inquiry and taking action. Listed are strategies and tasks currently underway or needed.

No plan begins in a vacuum. Similar planning and assessments have been conducted in the past, sometimes with a more limited focus. All of the relevant preliminary work is condensed in the Appendices.

For the Washington Department of Fish and Wildlife, education is a key element in achieving its conservation and recreation objectives. Effective education requires a planned effort based on thoughtful strategies that address pertinent issues. The adoption of the three-step educational process of systems understanding, environmental inquiry and taking action is the foundation for the department's education successes.

INTRODUCTION

As the Washington Department of Fish and Wildlife approaches the 21st century, it must examine its operations in light of new, more complicated challenges. Human population will continue to grow, converting fish and wildlife habitat into urban, suburban and agricultural developments. Many fish and wildlife populations are on a perilous decline, or soon will be. An increasing human population demands increased recreational and commercial use of a decreasing fish and wildlife base, creating inherent conflicts.

The department enters this new century and its challenges with a checkered past. Staffed with dedicated, caring individuals, it strains from a forced marriage. Formed from two organizationally-unique predecessors with differing mandates, it struggles with its new, holistic charge.

Chronic under-funding, a declining license-buying base and increased demands for services and new programs to address emergent issues have created budget and operational problems of Titanic proportions.

One strategy to address these enormous challenges is a cohesive, systemic education plan. Who needs to be educated, what do they need to be educated about, how will they be educated and who will do the educating are critical questions requiring a thoughtful response.

What is the current state of the resource? What are the current and projected trends and preferences in Washington? What are the best educational processes? What does the department hope to achieve from an education program? What are the most important issues the department wants to educate about? What do others say the department's educational activities should address? What will it take to be successful? What is the definition of success? How much will it cost?

This education plan is intended to examine these and other questions in detail, providing sufficient background to build a plan to help the Washington Department of Fish and Wildlife greet the challenges of the the 21st century.

Next: a Current View of Our Fish and Wildlife Resources.

CHAPTER I: STATE OF THE RESOURCE

Anadromous Fish

In 1993, the Departments of Fisheries and Wildlife and western Washington tribes completed an inventory of wild salmon and steelhead stocks. Only 43% of the 435 stocks statewide were classified as healthy while the rest were either critical (3%), depressed (28%), or unknown (26%), with one extinct species. Since 1993, many wild populations, especially chinook and coho, have continued to decline. This circumstance is reflected by the actual and potential listings of many salmonid stocks as threatened or endangered under the federal Endangered Species Act.

On February 26, 1998, the National Marine Fisheries Service (NMFS) proposed listing Puget Sound chinook and five other stocks of Washington salmon for protection as threatened under the Endangered Species Act. Lower Columbia steelhead were listed as threatened by the National Marine Fisheries Service on March 13, 1998, and Upper Columbia steelhead were listed as endangered on August 11, 1997.

The impact of the listing of these salmon stocks will affect land use and water-related activities in the entire Puget Sound region, including its urban areas. Along with the existing and other potential listings of certain salmon, steelhead, and trout species on the Columbia and Snake Rivers, the impacts of the Endangered Species Act will be felt throughout the state of Washington.

SALMON RECOVERY PLAN

The state, in cooperation with local governments, has developed a salmon recovery plan that addresses the basic threats to salmon survival — habitat, harvest, hatcheries, and hydroelectricity. Entitled *Extinction is Not an Option - A Statewide Strategy to Recover Salmon*, the draft plan was released in September 1998 by Governor Locke's Joint Natural Resources Sub Cabinet.

The stated goal of the recovery plan is to Restore salmon, steelhead and trout populations to healthy harvestable levels and improve those habitats on which the fish rely.

The recovery plan's objective is to: Develop and implement a coordinated statewide strategy that moves us aggressively toward the goal while maintaining a healthy economy. The Statewide Salmon Recovery Strategy will take a balanced approach to addressing the factors of decline that are within human control, including harvest, hatchery, habitat modification and destruction, and hydropower.

Several recurring themes were identified in the plan. Two have direct implications for education:

Theme: We must make tough choices. We are not going to save salmon by talking about it. We must make changes in the way we conduct our lives in our communities and our watersheds. These changes must result in improvement to salmon habitat, and include how we use our water, where we build our homes, how we harvest our timber and how we farm. We are also going to have to change how we manage harvests of salmon.

Theme: We are all in this together. Saving our salmon is not about blaming anyone. We are all part of the problem and we must all be part of the solution. Each of us must come to understand the impacts on our salmon and the opportunities we have to contribute to their protection and restoration.

The final guiding principle of the recovery plan states "Education of and outreach to policy makers, opinion leaders, state and local officials and all citizens of the state will be vital to the success of the strategy."

> The Joint Cabinet recognizes that involving and educating the public in salmon restoration and natural resource issues is critical to successfully meeting its goal of recovering salmon. Communities, neighborhoods and landowners have local knowledge of problems and ownership in the solutions. Education is a fundamental part of community-based actions involving watershed councils, soil and water conservation districts, volunteer habitat restoration groups and other grassroots efforts. People must understand the needs of steelhead/salmon in order to make informed decisions about changes necessary to restore and maintain healthy watersheds and healthy wild fish populations.
>
> The overall mission is to *inform, build support, involve and mobilize citizens* to assist in restoration, conservation and enhancement of salmon habitat.

Effectiveness measurements will be developed and monitored based on the following outcomes:

An informed public that understands the condition of the wild steelhead and salmon and the consequences of having ESA listed salmon in their watersheds.

A mobilized public that works in support of salmon restoration, contributes resources toward salmon restoration and changes current practices and behaviors to support restoration and preservation.

If the federal government is not satisfied with the state and local plans for conserving and restoring species, it could step in to regulate Washington land and water use. If the federal government considers the plans to be adequate, the state and local governments will be able to maintain their control of resource management decisions.

Marine Fish

Herring populations in Puget Sound have experienced a long-term decline in population size that is connected to a significant increase in natural mortality. Since the late 1970's herring stocks have decreased by one-half. Pacific herring are an important food source for many fish, birds and marine mammals. There are 18 stocks of herring in Puget Sound; of those, 22 percent are classified as critical or depressed; and 39 percent are healthy to moderately healthy.

Sardines have re-surged in population size and now occur in substantial numbers off the coast.

Columbia River smelt have declined precipitously in recent years. Surf smelts and sand lance populations have been stable.

Rockfish populations are in steady decline, and severe restrictions have been placed on sport and commercial fisheries in recent years. Populations of 13 marine fish, including cod, ling cod, rockfish, hake and pollock have dropped dramatically in the last 20 years. Additional harvest restrictions are likely. One strategy recently adopted is the creation of Marine Protected Areas, where no harvest is allowed.

Shellfish

Washington's shellfish resources are generally healthy, with the exception of abalone which is currently regarded as a depressed stock. Shrimp and crab stocks in the ocean and in Puget Sound have been providing substantial harvests to the various fisheries. The commercial dive fisheries for sea urchins and sea cucumbers have experienced declines in available harvest. Razor clams are healthy and are not experiencing the NIX-related mortalities of past years. Severe harvest restrictions on razor clams, however, may be enacted because of the presence of domoic acid, a toxin which is harmful to humans but apparently not to the clams.

Washington's shellfish beds support more than 350 commercial shellfish operations, employing 4,300 people. Recreational shellfish-gathering is allowed at 142 beaches, of which 41 are closed due to pollutants posing health and safety problems for consumers. From 1981-1996, 46,000 acres of shellfish growing areas have been downgraded, while only 7,000 acres have been upgraded.

Freshwater Fish

Washington has a vast amount of fresh water. With 4,174 lakes totaling 466,296 acres and 73,886 miles of streams, there is a lot of potential for fresh water fisheries. But there is also a tremendous demand on that water from industrial, agricultural and municipal users. And the single largest source of pollution to our waters is the everyday activity of citizens, such as fertilizing lawns and driving cars.

Endangered species issues are also a problem in fresh water. In addition to the steelhead runs being proposed for listing as threatened on the Columbia and Snake rivers, resident bull trout are also being considered. Of the 80 stocks of bull trout/Dolly Varden: 13 are healthy, 2 are depressed, 5 are critical and 60 are unknown. Bull trout were proposed as threatened under the Endangered Species Act in Puget Sound, the Washington Coast, Lower, Middle and Upper Columbia, northeast Washington and the Snake River on June 12, 1998.

There are 11 stocks of burbot: 1 is healthy, 1 is

critical and 9 are unknown.

The principle species of warm water game fish in Washington are largemouth and smallmouth bass, walleye, black and white crappie, bluegill sunfish, yellow perch, channel catfish and tiger musky. The status of these populations is stable in terms of numbers and distribution, but most populations exist in unbalanced predator/prey communities that offer only a fraction of their potential recreational value.

Rainbow trout remain the most sought-after game fish. However, very little natural production of rainbow trout occurs, and the fishery is dependent upon hatchery production.

Wildlife

Washington supports more than 640 vertebrate species and thousands of invertebrates. Fifty-five of these are hunted or trapped and 96 are vulnerable, declining, or critical Species of Concern. We have 23 endangered, 9 threatened, and two sensitive species in Washington, and 62 that are candidates for possible listing. Another 158 are species which are monitored for status and distribution to prevent them from becoming endangered, threatened or sensitive. Most of the 32 listed species that have declined in our state have been as a result of habitat loss. Washington's human population continues to increase at record rates. As this growth expands onto the land, wildlife habitat becomes further restricted.

In 1990, Growth Management Act (GMA) was adopted by the state legislature requiring local governments to address land use concerns beyond the scope of the State Environmental Protection Act (SEPA). This new act requires Washington counties and cities to take a comprehensive, coordinated, proactive approach to land use planning that will guide land development in their jurisdictions into the next century. With this act, state wildlife biologists are responsible for assisting and advising local governments in adopting policies and regulations that will support the agency's mandate to protect fish and wildlife resources and preserve our state's rich wildlife heritage in this changing landscape. It is critical that wildlife biologists help cities and counties with site planning of developments such as Planned Residential Developments (PRDs) and industrial parks, and support local agencies with technical knowledge of species and species management recommendations so they may preserve habitat within developments, and provide technical assistance for mitigation plans. For example, the upland sandpiper appears to have been extirpated from the Spokane Valley because of mass development. WDFW needs to identify potential high risk urban species and act to preserve these species.

Other changes in wildlife management in the state have become obvious with the recent drop in sales of fishing and hunting licences. Washington's population is becoming more urbanized and, as recent surveys have shown, the population of hunters and fishers is declining, but over 75% of the population participates in non-consumptive wildlife recreation. In addition, over 85% of the public are interested in increased protection and enhanced viewing of non-game wildlife.

Species do not have to be formally listed as threatened or endangered to be in trouble. Populations of scoters, the state's most numerous wintering duck, have plummeted by more than 50 percent since 1979. Seabird populations have shown large decreases in the past 5 years. Amphibian population declines as well as deformities are appearing in Washington. Wildlife management faces many challenges in the next millennium.

With increased urban population comes increased deleterious exotic species and nuisance wildlife. The public unwittingly introduces non-native wildlife (such as bullfrogs in backyard ponds) or encourages nuisance and/or deleterious wildlife (feeds Eastern gray squirrels and Canada goose, feeds or leaves garbage open for crows). Education and research should be done to prevent this.

Habitat and Water Quality Loss

Statistics cited in *Our Changing Nature - Natural Resource Trends in Washington State* clearly show that fish and wildlife habitats have severely declined during the past generation, and with rapidly increasing human populations, the trend is likely to accelerate.

Consider these facts:

In the last 50 years, Washington has lost two-thirds of it's old-growth forests, with most of the remaining old-growth at high elevations in national forests and parks. Nearly all non-publicly-owned old-growth forests are gone.

From 1970 - 1992, nearly ten percent of all forests were converted to other uses - roads, suburbs, cities and farms.

Sixteen of the 48 Oregon white oak, ponderosa pine and dry Douglas-fir or grand fir community types are considered endangered or threatened. Thirteen of the 54 Douglas-fir, grand fir, western red cedar, western hemlock, and western white pine associations are endangered or threatened.

Over 70 percent of native grasslands have been converted to other uses, and most of the remaining 30 percent are along steep canyon walls.

The Palouse Prairie is one of the most endangered ecosystems in the United States, with only one percent of the entire original habitat remaining.

Over one-half of the shrub-steppe habitat in Eastern Washington has been converted to irrigated crops; the remainder is heavily grazed by cattle.

Washington is considered among the poorest of our nation's states in key water quality indicators, including having the third highest number of water systems violating the Safe Drinking Water Act.

One half of the state now has insufficient water to support all the needs of people, plants and animals. The water in 250 streams is already over-allocated.

There are 1,022 dams obstructing Washington's waterways, blocking thousands of miles of spawning habitat for imperiled salmon, with the destruction of critical riparian areas.

Statewide, over 31 percent of wetlands have been lost; in urban areas the amount is greater than 90 percent. Between 90 and 98 percent of urban coastal wetlands have been lost. Puget Sound has lost 70 percent of its tidally-influenced wetlands. Forty-three percent of threatened and endangered species rely directly or indirectly on wetlands for their survival.

Twenty-five percent of Puget Sound's intertidal zone has been modified by human development.

Between 30,000 to 80,000 acres of wildlife habitat are lost each year to urban development, agricultural practices, timber harvesting, highway construction and other activities.

Population Increase

Although Washington has the smallest land area of the eleven western states, it has the second highest human population density and continues to grow rapidly. Each of the last four decades has brought a 20% increase in population.

The news for fish and wildlife is worse in our foreseeable future. If growth continues at current rates, by the year 2020, Washington's human population will grow by another 2.1 million people to 7.7 million. By 2045, Washington's population will double from it's current level, to 11 million people.

As stated in the 1998 report *Our Changing Nature*, this is equivalent to adding 29 new cities the size of Tacoma or Spokane. That's one new city this large every 1.6 years.

The report continues:

With twice as many people, another challenge will be how to minimize our damage to the environment and how to protect the remaining forests, fish, wildlife and grasslands. Now and in the future, at least three factors significantly threaten our natural resources: (1) the number and location of people living in our state, (2) the amount of resources we consume, and (3) the waste we produce.

Consequences of this explosive human population growth are:

More cars that will further degrade water and air quality.

More energy consumed.

Greater demand on rural and resource production land for development.

Increased demand for timber, mines, gravel and rock pits.

Increased need for treatment and disposal of solid waste, sewage and storm water.

Greater challenges in providing drinking water.

More crowded recreation areas, especially those near water.

More stress on native plants and animals and their habitats resulting from housing developments, shopping malls, industrial parks, direct disturbance and increased recreational demands.

The early 1990s brought a surge in rural population in Washington, mainly due to a large influx of semi-retired Californians seeking affordable housing in rural areas. This trend has reversed in recent years, with urban Western Washington now increasing 1.8 percent annually while rural Eastern Washington is increasing at 1.2 percent annually.

Next: a Look at Washington's Human Population and Desires.

CHAPTER II: CURRENT TRENDS AND PREFERENCES

Ethnicity

While the population of Caucasians is increasing in Washington, populations of other races are increasing at a much faster rate. From 1990 to 1996, the Caucasian population increased 13% while the population of all other ethnic groups increased 45%. Asian/Pacific Islanders and Hispanics are the population segments increasing at the fastest rates, with both groups increasing 57% between 1990 and 1996. (Figure 1.)

This dramatic increase in minority populations in Washington represents an opportunity for WDFW to target a growing group that currently is much less active in fish and wildlife related activities than Whites. While figures from Washington are not available, on a national level minority populations participate far less in hunting, fishing, and watchable wildlife activities. (Figure 2.)

Figure 1: Population Increase in Washington State by Race, 1990-1996
Source: Washington State Office of Financial Management. 1997 Population Trends.

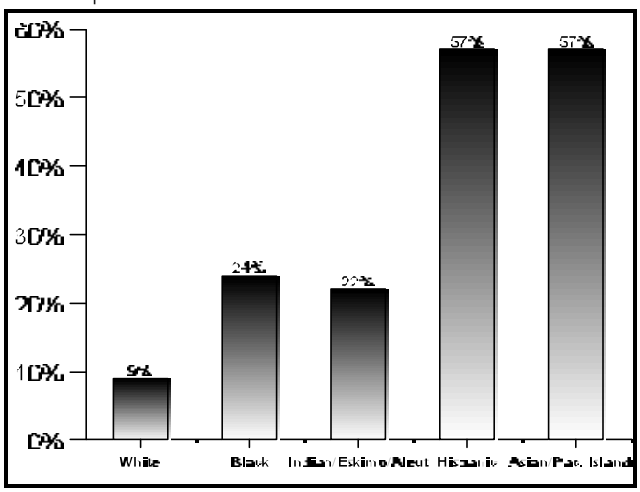
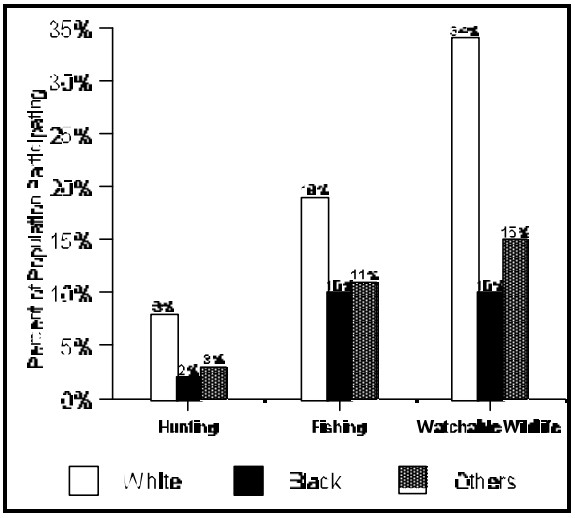


Figure 2: National Participation in Fishing, Hunting, and Watchable Wildlife by Race.
Source: 1996 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation.



License and Recreation Trends

A U.S. Fish and Wildlife survey completed in 1996 shows that between 1991 and 1996, numbers of hunters and fishers remained nearly the same while the U.S. population increased substantially. (Figure 3.) That is, while the number of hunters and fishers is remaining constant, the percentage of Americans who hunt and fish is declining.

Figure 3: U.S. Hunters and Anglers (1955-96) (Indices are used to simplify comparisons between the wildlife-related recreation activities). Index (1955=100). Source: 1996 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation.

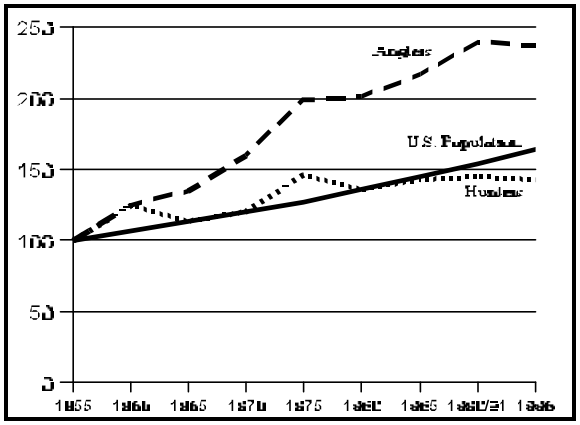
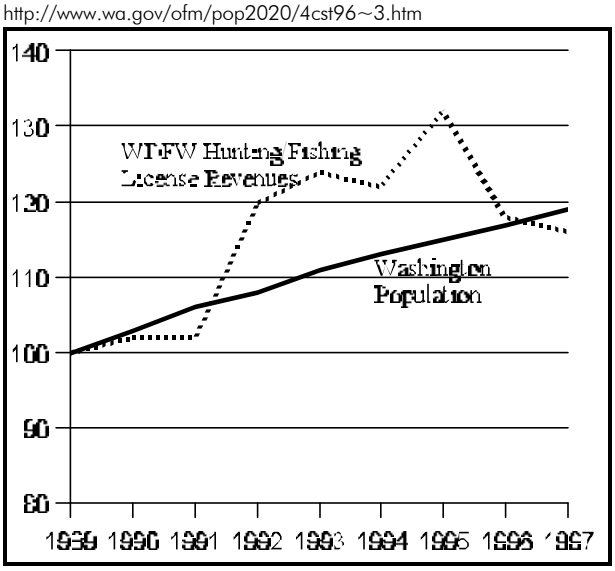


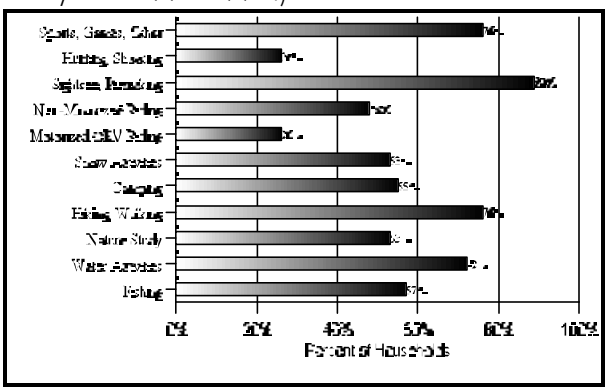
Figure 4: Washington Hunting/Fishing License Revenues: 1989-1997 (Indices are used to simplify trends. (1997=100.) Source: WDFW License Revenue Status 1989-1998 and Office of Financial Management, Forecasts of the State Population by Age and Sex: 1990-2020. http://www.wa.gov/ofm/pop2020/4cst96~3.htm



In Washington, the trend is similar. While the population of Washington is steadily increasing, hunting and fishing license sales have declined since 1995. (Figure 4.)

The Washington Interagency Committee for Outdoor Recreation conducted a study in 1987 showing that over 50% of Washington households engaged in fishing, water activities, nature study, hiking, camping, snow activities, sightseeing and sports, with fewer engaged in hunting, shooting and motorized ORV riding . (Figure 5.)

Figure 5: Recreation Participation in Washington State. Percentages refer to percent of Washington households that engaged in the activity in 1987. (Source: Interagency Committee for Outdoor Recreation. Washington Outdoors: Assessment and Policy Plan 1990-1995.)



While this 1987 Washington study showed a high interest in boating and fishing, trends since then have been negative. To determine why participation in these activities is declining, the Sport Fishing and Boating Partnership Council conducted a national needs assessment in 1998. The findings of this study are in Appendix IV.

1996 WDFW Human Dimensions Research Survey

In 1996, a telephone survey of 801 Washington residents was conducted. Sixty-six percent (66%) of the respondents are frequently involved in wildlife-related activities, with 85% saying that wildlife-related activities are an important part of their lives. Approximately 1/4th of the respondents participated frequently in traditional wildlife activities: twenty percent (20%) fished frequently, 11% hunted frequently and 25% fish and/or hunt frequently. Fifty-eight percent (58%) were frequent wildlife observers. Sixteen percent (16%) photographed or painted nature/wildlife frequently. Seventy-five percent (75%) said that observing and learning about fish and wildlife that are not game species, such as songbirds, insects, marine mammals, reptiles, starfish and so forth, is an important part of their life, compared to 48% who said that fishing and/or hunting is an important part of their life.

Respondents expressed strong concern over the health of Washington's game and non-game fish and wildlife, with 57% rating the health of fish and wildlife populations as poor or fair. Fifty percent (50%) rated the decline over the last 20 years as severe or extreme.

Respondents were asked to indicate to which programs WDFW should give more priority. Two of the top six responses concerned education:
-Programs using citizen volunteers for conservation projects, such as habitat restoration and protection.
-Providing information to the general public about how to help in the protection and restoration of wildlife and wildlife habitat in Washington.

Sixty-six percent (66%) of the respondents listed opportunities to view and understand wildlife as their first or second priority for department programs.

Recreational Volunteerism

The researchers who analyzed the data from this survey were surprised with the very high interest in volunteerism, with approximately 1/4 of the respondents strongly interested in volunteering to help fish and wildlife.

"The interest in volunteering in conservation projects is too common to be considered 'volunteerism' in the traditional sense. The high level of interest expressed in volunteering for conservation projects would make it comparable in frequency to hunting and fishing activities, so perhaps it should be called recreational

volunteerism and thought of as a product offering comparable to hunting and fishing opportunities.

"As an activity, volunteerism needs to be developed as a 'product' in the same way that hunting and fishing opportunities are viewed as products. That is, a 'recreational volunteerism' product should provide the level of satisfaction for its participants as hunting and fishing does for its own participants. This would require that the volunteer opportunities be developed from the participant's point of view rather than from the Department's point of view.

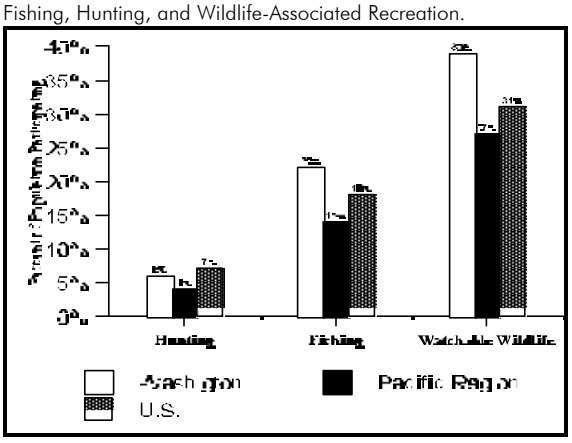
The department has traditionally relied on volunteers for its Hunter and Angling Education programs, and for many on-the-ground restoration programs. This survey identifies the opportunity to expand in these areas, particularly as they relate to the "taking action" step in the three-step educational process.

1996 National Survey, Washington Data

The 1996 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation showed that Washington enjoys higher participation rates in fishing, hunting, and wildlife watching than the national average, and higher fishing and wildlife viewing than the neighboring Pacific States. (Figure 6.)

Figure 6: Participation in Fishing, Hunting, and Watchable Wildlife.

Pacific Region includes Washington, Oregon, California, Nevada, Alaska and Hawaii. Source: 1996 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation.

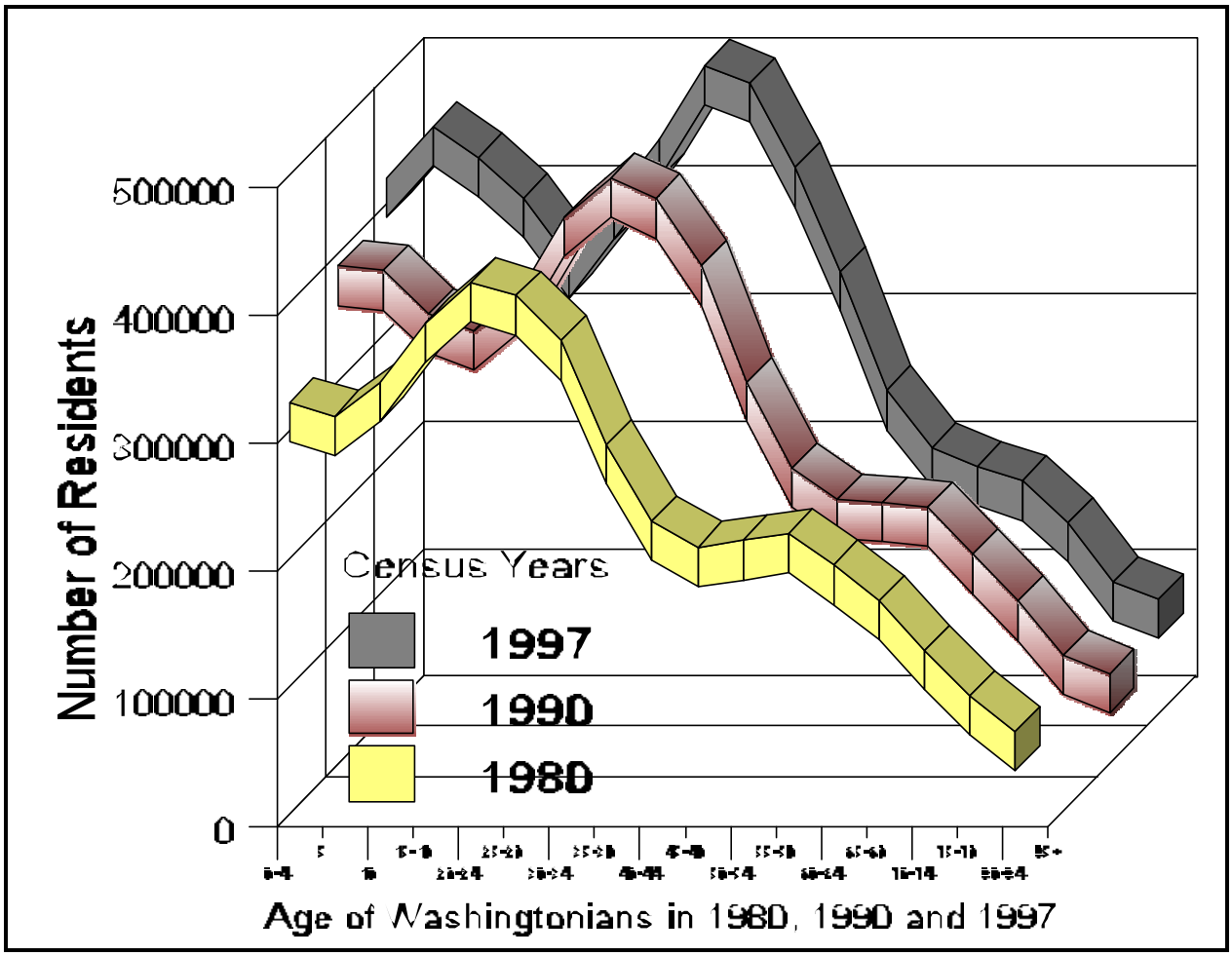


Washington itself is the destination for wildlife watching for both Washington residents and visitors from other states. Washington residents spent 75 percent of their wildlife-watching (some 6.5 million days) within their own state in 1996. Visitors to Washington spent close to 6 million days wildlife watching in our state.

Overall, participants in wildlife watching activities spent some 1.7 billion dollars in Washington on wildlife watching activities in 1996. Money was spent for food, lodging, transportation, land-use fees, equipment rental, equipment purchase, and other related expenses.

Washington's wildlife resources contribute to social, economic, and cultural qualities of the state and its communities. Recent survey data indicate that wildlife watching activities supported more than 21,000 jobs, yielded $426.9 million in job income; made $136.3 million in retail sales from bird watching and feeding; and generated $56.9 million in state and $67.4 million in federal tax revenues in Washington state.

Figure 7: **Washington's Aging Population.** Twenty years ago, and 20 years younger, baby boomers demanded intense outdoor activities. In 1980, the age of the population peak was 20 to 24; in 1997, the population peak is now 45 to 49. As baby boomers reach middle age, their recreational preferences change, fueling a dramatic increase in softer outdoor activities such as wildlife viewing, interpretive walks and nature activities.



Since the mid 1980s, the population of children ages 5-17 has increased significantly in Washington state. This trend is expected to continue until 2005.

While the population of young people has increased, populations of working-age adults (ages 18-64) and the elderly (age 65 and older) are increasing as well. The huge population of baby boomers is reaching middle age, with a significant change in recreation preferences. (Figure 7.)

The Sport Fishing and Boating Partnership Council reports that only 9% of seniors currently participate in Fishing/Boating activities. But they love wildlife watching and bird feeding.

Next: What Does the Public Feel Are the Vital Issues That the WDFW Needs to Educate About?

CHAPTER III: EDUCATIONAL NEEDS ASSESSMENT

In January 1999, an educational needs assessment was conducted via an electronic e-mail questionnaire. The following feedback from internal and external audiences gives a view of the current issues; preferred educational outcomes and the behaviors that need to change. Issues have been grouped by audience and existing WDFW educational programs. This is raw, unedited input (except for spelling, grammar and elimination of duplicate entries and personal agendas.) Some duplication in the listings is purposeful, as some issues are addressed by more than one educational program.

The questionnaire asked : "The WDFW needs to educate (audience) about (issue) because (outcome) so that (behavior change)." Respondents were asked to fill in the blanks for audience, issue, outcome and behavior change. Most respondents clearly defined the issue of concern, but the desired outcome of the educational activities and the hoped-for behavior change in the audience were a more difficult challenge. All are presented below, with the issue identification being the most significant and helpful in program planning.

Over 160 responses were received, from a wide range of external and internal audiences. The use of the e-mail process did not seem to limit any particular group from contributing. The survey was highlighted on the WDFW Web page, and publicity concerning it was sent through traditional new releases, as well as through a variety of word-of-mouth, e-mail and list-server notifications. In the few instances where individuals could not access the survey via e-mail, paper copies were provided.

Previous needs assessments are detailed in Appendix II.

From the needs assessment, it is clear that the systems that need to be understood include:

- Watersheds
- Riparian areas
- Estuaries and marine habitats
- Wildlife and habitats
- Fish and habitats
- Amphibians and reptiles
- Birds
- Endangered species
- Role of wildlife management in maintaining or sustaining species
- Biodiversity
- Wise use of resources and recreation
- Consequences of personal actions

Issues for All Education Programs

	Issue	Outcome	Behavior Change
Adults - informed			
	Inadequate funding of WDFW, and natural resource agencies in general.	Needs of fish and wildlife will be adequately addressed, and local quality of life maintained.	Historic programs are either suffering, or being dropped, to the detriment of wildlife, hunting/fishing, and quality of life.
Adults - novice			
	Communication and education techniques.	They can be helpful to homeowners and persons with questions about wildlife in their neighborhoods in an approachable, non-intimidating, educational, non-technical and helpful manner.	When the general public currently call the department they do not feel like their questions and concerns have been heard, understood or responded to and they go away feeling like they have not been helped which results in little to no support for the ...
	Educating the public to understand, take responsibility, and overcome the wildlife and fisheries needs.	To restore our wildlife and fisheries so that generations to come will be able to enjoy the wildlife and fisheries of today.	Wildlife habitat loss, fisheries habitat quality.
	Fish and wildlife habitat needs and life cycles and what needs can be met by simple daily actions we all take.	They will develop changes in their daily behaviors that positively affect fish and wildlife habitat and sustainable ecosystems.	Cumulative effects of individual actions can make a big difference for better or for worse and a large number of uninformed people would make changes if they understood how
	Habitat and its importance.	They understand basic issues.	There is no connection to habitat.
	Habitat and lifestyle choices that affect fish and wildlife, (for	Better choices to protect and restore habitat and modify life	Need public support of growth management, in urban, suburban, and rural areas, need to

example energy consumption). Also, unregulated, uncontrolled growth is a problem. Our state has tremendous growth pressures, and we need to have urban and suburban planning that protects.	style to minimize impacts and support of good growth management that protects habitat.	reduce consumption of resources, including electricity that have direct impact of fisheries resources, need to protect and restore riparian areas and critical habitat.
Habitat.	Preservation of habitat.	Habitat is being destroyed.
Importance to manage for biological diversity.	We may conserve our national living heritage before species and ecosystems are lost.	We only get one chance, once a species or ecosystem is lost is can NEVER be restored.
Life of free flowing water.	Clean water habitat for all wildlife species.	Over development and LACK of understanding how people not nature destroy
Lifestyle choices that impact the environment.	People will make more sustainable choices regarding transportation options, use of home/lawn/agricultural chemicals, solid waste disposal, etc.	There is a general lack of awareness of how directly actions such as SOV commuting and using lawn pesticides/fertilizers impact environmental health.
Loss of habitat.	The state can keep a diversity of animals, fish and birds in the wild.	Clear cutting, stream polluting, suburban development, parking lots and roads covering the countryside.
Loss of Wildlife Resources.	We can prevent further loss of Natural Systems.	The general population does not realize the importance of these areas.
People are part of ecosystem.	Stewardship becomes second nature.	Our disregard for our world is destructive.
Preservation/protection of	They will preserve and protect what they own or are near.	It might eliminate a few lawns in favor of native plantings, etc..
Protecting the integrity of our environment.	The environment will be sustainable into the future.	Degradation to the environment through lack of knowledge or disregard.
Resource use	All information from all managers is available for public	Most people gain opinions from word of mouth which may deliver inaccuracies - leading to beliefs that harm the resource.
The critical need to provide more funding for education and outreach.	Fish and wildlife information can be communicated to interested publics.	Ignorance has measurable costs.
The importance of protecting and planting native plants.	Habitat for all native wildlife will be preserved and created.	Currently people do not appreciate native vegetation and do not understand its importance to wildlife.
Elementary school students		
Crashing wildlife populations.	Stabilized and improved ecoscapes.	Rampant habitat destruction.
Fish and wildlife habitat and life cycles.	Young citizens will understand, appreciate, and value habitat left to support the ecosystem.	People depend on an intact ecosystem, too, and this knowledge and appreciation will hopefully lead to desire to implement behaviors to sustain it.
Fish and wildlife habitat.	Communities improve habitat.	We cant wait for others to fix the problems.
Human health (physiological and psychological depends on a healthy environment.	People become better stewards of the land and its resources.	Toxic household and yard chemicals have far-reaching effects on humans as well as fish and wildlife especially when they enter the aquatic environment.
Natural History of Washington's Fish and Wildlife.	Students can understand the role they play in the ecosystem.	Many students are disconnected from the natural world.
Saving habitat for wildlife.	Youth will create habitat for wildlife in their communities and back yards.	Youth need to learn the skills of identifying and creating habitat.
The boundary-less behavior of water, fish, and wildlife.	Contiguous political jurisdictions can coordinate the development of solutions to mutual environmental problems .	We don't live in discrete boxes isolated from one another.
The connection between everyday choices, such as taking car ride or buying something, and the effects it	People can make more informed choices.	Our environment is suffering due to our
The human interactions and interdependencies with fish and wildlife.	They become an informed citizenry, make quality decisions and take appropriate actions throughout their lives.	We must all learn to protect and value the ecosystems/habitats within which we live.
The interdependent relationships of an ecosystem with humans in the picture.	Families realize our reliance and our impact on local, state, national, and global ecosystems due to actions and inaction.	People take action and make decisions which result in negative impacts to our ecosystem without being aware of these impacts or alternatives that could have been less detrimental, or even beneficial.
Secondary school students		
Actions they can take within their own communities.	Fish and wildlife habitat is restored or protected, and pollution or degradation is prevented.	The ecosystem that sustains fish & wildlife also sustains people and students learning to take action to sustain it will help as young citizens today and adult citizens tomorrow.
Ecosystems, populations and the effects of habitat	Students can learn from experts in the field, rather than books and to get involved in data collection, monitoring and restoration projects.	It may draw more students to continue into college to study fish and wildlife and they can become more responsible stewards of our natural resources.
Environmental issues.	Teachers can address them and develop skills on how to tackle the complexity of them in the democratic system.	Students need a broader approach to complex environmental issues.
Fish and wildlife issues.	Students leave the K-12 education system informed about the complexity of and need to be involved in	Currently there is a tendency to focus on one aspect of an issue.

	environmental issue decision	
Habitat for all wildlife.	Make future decisions to protect habitat.	Annihilation of habitats for every species but man.
Habitat loss.	More people are involved with restoration and better yet, lets stop destruction of habitat in the first place.	Over developing our landscape, feature ads that show the L A area in CA.
Habitat restoration.	How habitat loss effects our state.	Pollution- urban habitat destruction.
Inquiry-based and field-based education.	Teachers can appropriately prepare their students for roles in environmental protection.	Too many people are unaware of and disconnected from their stewardship responsibilities.
The impact s of development on natural systems.	They understand that the little things which they do, (pavement, mowing and fertilizing grass) shade trees, etc. multiplied by the zillions of people around our area have the potential for huge impacts	As it is now, people are unaware that their new home in suburbia is someone else's suburbia, the natural biotic life which was living there undisturbed until the new homes were built. We are now developing marginal areas which had not been touched
The importance of habitat.	Species continue to succeed.	We are losing habitat to development.
The loss of habitat.	We can save as much as possible.	I want to have wildlife around for my grandchildren.
Using resources wisely.	Resources are available for future generations.	We are self centered and only weigh the effects on us today.
Wildlife management issues and tools. & Growth management impacts on wildlife and habitat.	Better understanding of relationship and humans part in the balance of healthy wildlife/fish and our impact and the issues , the available resources .	Many people feel a ideology that man is above nature, or nature will take care of itself or plain ego that some one else can deal with the problems. They must first become aware how we can be involved.

Angling Education Issues

	Issue	**Outcome**	**Behavior Change**
Adults - informed			
	Fishing: why release fish/which ones to release and what they look like.	Continued opportunities/help the resource/tell they why and they will listen.	Honest mistakes and breaking the rules because of ignorance for instance a few does are shot because you obviously want to save the females)in this case save the wild
	Increased targeting of non-native fish species.	Pressure on native salmonids will be relieved.	Many anglers don't realize the alternative forms of fishing available, for species that are not in trouble, and in most cases are not
	Loss of trout angling opportunity in Northwest Washington lowland lakes.	Funds may be applied and appropriate tools used by professional managers.	Loss of angling opportunity not only exacerbates the agencies funding crisis, it snowballs the deterioration of loss in living quality and recreational opportunity in this
	Shifting from fishing wild native salmonids to fishing less-used species.	There is less negative impact on the wild native fish.	Many stocks of wild native salmonids suffer from fishing pressure; many other species are available that aren't fished for as much.
	The next higher level of actions they can take to protect fish and wildlife habitat and prevent pollution to ensure sustainable ecosystems for us all.	They will know how and want to make these improvements in their habits.	These are the folks who are already on your side and the decisions they make influence the community now. (That's what the young students will inherit, and unless we leave them with something to work with, it's a moot
	The volunteerism opportunities available.	The public can be further education about natural resource issues.	The department doesn't have adequate staff to do as much as needs to be done.
	Their actual and potential effects on fish and wildlife.	They become aware of their threat to sensitive populations.	Enforcement is a less-desirable alternative to education and change.
Adults - novice			
	Actions they can take to protect fish and wildlife habitat and prevent pollution to ensure sustainable ecosystems (like fencing away from streams, using less water, planting riparian zones, leaving cover in hedgerows, gleanings in fields, etc.).	They will know how and want to make these improvements in their habits.	These are the folks who are making a big difference with the land they manage and many of them have a land ethic you can build
	Culvert blockages.	Salmon will be able to pass through them.	Currently there are many barriers to fish passage.
	Daily life style activities that impact wildlife, little information on the value/importance of our natural wildlife.	Individuals engage in more thoughtful, conservation activities.	Of unregulated hunting and fishing, dogs impacting salmon spawning beds, disturbing wildlife in general, off-road vehicles in natural areas, over use of our parks.
	Economic benefits that fish and wildlife lands and recreation contribute to national and sate economies. Also significance to rural communities, proximity to public lands, existing 1-2 layer economies, ripple effect of expenditures in rural	Even the most basic human appeal/argument is laid before the public - wildlife makes	Americans appreciate a good deal!!
	Fish habitat restoration.	A more educated population with regards to salmon habitat.	People need to know what they can do to help fish in their every day lives.
	Identifying salmon species. We have observed that a fair amount of fishers can not tell a Chinook from a coho from a sockeye etc. This creates major problems in our efforts to protect critical stocks.	Critical stocks can be adequately protected from	Anglers need to be properly educated about target species before issuing a license.
	Loss of habitat and watershed hydrology.	They will be ready to support projects which restore habitat and prevent local flooding.	Many do not realize the impact that development and impervious surfaces have on a watershed and are not willing to pay for
	Over harvesting of any natural	Harvesting on a much more	Everyone needs to understand that we cant

resource.	limited bases than is presently exercised.	keep blaming industry for the ills being experienced with fish and wildlife. Name a natural resource that is the same as when white men showed up in the Pacific
Preserving riparian zones on their property.	Preserve wildlife habitat, fish habitat.	People create lawns down to the
Proper catch and release for trout and steelhead.	Improved awareness and education of all anglers targeting steelhead to decrease mortality of native run	Improperly practiced catch and release in fisheries with overlap of native and hatchery stocks adversely impact fragile native stock.
Salmon habitat & water resource protection.	We have clean waterways and healthy salmon runs.	People use pesticides, degrade habitat, damage their private properties with salmon streams, etc. .
Selective fisheries.	The fishing public is aware that during a selective fishery only adipose marked salmon can be retained.	Currently marked and unmarked salmon can be retained in Puget Sound during salmon openings. The public needs to be educated about upcoming selective fisheries, how to spot a marked fish and how to properly release an unmarked fish, if selective fish.
Shoreline management.	They will replant and maintain native vegetation on the shorelines.	Current practices are endangering salmon and other native wildlife such as songbirds and encouraging problems such as Canada geese and allowing herbicides and pesticides to run off into the water affecting water
The drastic decline in salmon numbers.	The people understand the magnitude of decline and the biological value the salmon	People don't understand that the salmon are a direct result of their individual behavior patterns of consumerism.
The needs of wild salmon.	Streams will have healthy riparian areas.	Flood control prevents connectivity of the river to its flood plain.
The proper, professional use of piscicides (notably rotenone).	Professional fish and lake managers can use all appropriate tools available to them.	Illegal fish stocking and imbalance fish populations have decimated northwest Washington lowland lake trout fishing opportunity.
Watershed awareness; stewardship.	Rural residents and students gain awareness and understanding of their watersheds.	Focus is still primarily on Washington's west side.
WDFW needs to educate community leaders and agency staff about value of working together on behalf of common values surrounding sense of place, wildlands and wild living things that stir the human spirit and make the planet a home.	Respect for other living things becomes a priority for the human condition.	It will be a very lonely place without some biological diversity.
WDFW needs to educate/engage in dialogue with range of ethnic groups of fish, wildlife and habitat concerns and values.		Studies from other states indicate for example that few Hispanics in Texas have visited a National park or wildlife refuge within their life. Why should they vote to support fish and wildlife conservation and management.
What specifically harms streams and wetlands.	They can avoid it.	Landowners often harm the environment unknowingly.
Elementary school students		
The fact that hunting and fishing is a respectful family activity and that it is not about the demise of a species but it is effective fish and wildlife	Society might return to a family activity that doesn't revolve around either the movie industry or television.	
All fish and wildlife and their habitats.	Students can educate their parents of keeping common animals common.	Our quality of life is linked to our environment.
All hunting, fishing, and wildlife related activities.	People are concerned about nature, but not anti-hunting.	Many people don't care, and others are against hunting.
Depletion of and damage to natural resources including water quality and animal/fish species, etc..	They will realize the possibility of losing them forever and will become committed to conservation measures because they have experienced them in person and been involved in hands-on	Young people who have not been out in the woods, fields, and by the water themselves and experienced the damage to natural resources do not know (or care) what common, everyday activities do to our environment and ecological balance!.
Environmental stewardship.	Fish and wildlife resources can be appreciated and protected by everyone.	We tend to value what we understand.
Estuarine and marine environments.	These nursery areas which support multiple links .	Development and pollution threaten these ecosystems.
Good education techniques which engage the public.	The public are satisfied with WDFW feedback from employees.	WDFW employees are reticent to work with the public even with presentation tools
Hunting and fishing and why it is necessary right.	We can continue our hunting heritage.	That hunting is barbaric, and inhumane.
Our waters are being polluted such that we are changing the balance of our environment.	That students will be aware and will change behaviors that will ensure the preservation of existing species.	People are unaware that what they do adversely impacts our environment.
The detrimental effects of diking rivers and streams.	Fish and wildlife habitats are better protected and better growth management and land use decisions and regulations will prevail.	Diking drastically alters the alluvial processes and vegetation that create some of the most critical habitat for fish and wildlife. In the long run diking can create more problems than it solves, particularly when dikes inevitably fail during a flood.
The importance of wild fish.	All reasonable measures can be taken to ensure additional wild salmonids are saved from extinction.	Citizens need to stop viewing salmon as simply something to consume.
The interrelationships of critters in a healthy, functioning ecosystem.	They learn to appreciate species diversity and	Education influences behavior.
The role of the environment, fish and wildlife in providing quality of life.	Young students will begin a lifetime of caring about the fish and wildlife in the places where they live, creating habitat in their backyards and community areas, and enjoying outdoor	Young students of color are not active participants in outdoor recreation, and feel excluded from conservation efforts at schools, and in the community, where environmental action seems to be dominated

		recreation including watching	
	The value of volunteers who can contribute to their work as stewards.	Volunteers can contribute to WDFW research and conservation measures that meet the mandate.	WDFW employees need to have more faith and confidence in the value of employees through training on how to work with
Secondary school students			
	Fish habitat needs.	Native fish stocks improve.	Building and managing land in flood plains and along surface waters is ignoring effects on fish habitat; students at the high school level need to be aware of this before they are ready to purchase land, a home, etc.
	Fish Identification and catch-and-release techniques.	Anglers will know more accurately what they should release, and how to do it in the most fish-friendly way.	Currently there is a great lack of fish identification and handling skills, even among those who consider themselves skilled
	How to use fish and wildlife as a topic to connect students to where they live.	Students will work throughout the year to develop a full picture of fish and wildlife in their community so they can plan for fish and wildlife in their	Students through trained teachers can actively inventory their community and use this information to look at local government growth management plans, and problem solve for local governments.
	Hunting & Fishing ethics.	Informed, responsible sportsmen & sportswomen.	Leaving trash behind. Tossing beverage containers everywhere.
	The major problems affecting the struggling salmon	The same mistakes are not made in the future.	Blame is irrelevant, problems exist and need to get fixed, even at the expense of those who have no blame.
	Trout angling management and opportunity.	Angler expectations are realistic, and not totally dependant upon large scale	Fast fishing for that quick limit is unrealistic in the 1990s, if not impossible to provide due to budget cutbacks, and wild trout populations generally cannot provide that type of fishing. Angler expectations must be in tune with reality, and taught.

Aquatic Education Issues

	Issue	**Outcome**	**Behavior Change**
Adults - informed			
	The importance of involving tribes in all restoration efforts, because they are	Tribal and non-tribal groups develop partnerships that result in cooperative, more effective restoration.	Non-tribal groups (including government agencies) often exclude tribes or do not involve them meaningfully in restoration. Restoration projects that are taking place right now without meaningful tribal involvement and input run the risk of not being .
	The next higher level of actions they can take to protect fish and wildlife habitat and prevent pollution to ensure sustainable ecosystems for us all.	They will know how and want to make these improvements in their habits.	These are the folks who are already on your side and the decisions they make influence the community now. (That's what the young students will inherit, and unless we leave them with something to work with, it's a moot
	The volunteerism opportunities available.	The public can be further education about natural resource issues.	The department doesn't have adequate staff to do as much as needs to be done.
	Their actual and potential effects on fish and wildlife.	They become aware of their threat to sensitive populations.	Enforcement is a less-desirable alternative to education and change.
	WDFW - what it does. Not only game but non-game activities & support.	Realize what wildlife is & that WDFW is there for all wildlife.	This will strengthen WDFW's support base & get new citizens involved with wildlife.
Adults - novice			
	Actions they can take to protect fish and wildlife habitat and prevent pollution to ensure sustainable ecosystems (like fencing away from streams, using less water, planting riparian zones, leaving cover in hedgerows, gleanings in fields, etc.).	They will know how and want to make these improvements in their habits.	These are the folks who are making a big difference with the land they manage and many of them have a land ethic you can build
	Culvert blockages.	Salmon will be able to pass through them.	Currently there are many barriers to fish passage.
	Daily life style activities that impact wildlife, little information on the value/importance of our natural wildlife.	Individuals engage in more thoughtful, conservation activities.	Of unregulated hunting and fishing, dogs impacting salmon spawning beds, disturbing wildlife in general, off-road vehicles in natural areas, over use of our parks.
	Fish habitat restoration.	A more educated population with regards to salmon habitat.	People need to know what they can do to help fish in their every day lives.
	Identifying salmon species. We have observed that a fair amount of fishers can not tell a Chinook from a coho from a sockeye etc. This creates major problems in our efforts to protect critical stocks.	Critical stocks can be adequately protected from	Anglers need to be properly educated about target species before issuing a license.
	Impact of development on Washington's wildlife.	Citizens of Washington can understand the impacts of development, learn how to fight those impacts, and learn responsible growth management practices.	Development has the upper hand in Washington at the expense of wildlife. We need to empower the people to demand responsible growth management so that development does not always have the upper hand and does not replace our wildlife
	Loss of habitat and watershed hydrology.	They will be ready to support projects which restore habitat and prevent local flooding.	Many do not realize the impact that development and impervious surfaces have on a watershed and are not willing to pay for
	Over harvesting of any natural resource.	Harvesting on a much more limited bases than is presently exercised.	Everyone needs to understand that we cant keep blaming industry for the ills being experienced with fish and wildlife. Name a natural resource that is the same as when white men showed up in the Pacific
	Preserving riparian zones on their property.	Preserve wildlife habitat, fish habitat.	People create lawns down to the
	Salmon habitat & water	We have clean waterways and	People use pesticides, degrade habitat,

resource protection.	healthy salmon runs.	damage their private properties with salmon streams, etc. .
Shoreline management.	They will replant and maintain native vegetation on the shorelines.	Current practices are endangering salmon and other native wildlife such as songbirds and encouraging problems such as Canada geese and allowing herbicides and pesticides to run off into the water affecting water
The drastic decline in salmon numbers.	The people understand the magnitude of decline and the biological value the salmon	People don't understand that the salmon are a direct result of their individual behavior patterns of consumerism.
The effect of urban sprawl and agricultural practices on fish and game habitat.	Further degradation of habitat is stopped.	The idea that development is beneficial progress.
The needs of wild salmon.	Streams will have healthy riparian areas.	Flood control prevents connectivity of the river to its flood plain.
The whole truth as is presently known about the problems with our fish.	Action can be taken to remedy the situation regardless of who it impacts.	Everyone who has a stake in fish is pointing the finger at someone else when it does not matter if the innocent get hurt if that is what it takes to solve the problems.
Watershed awareness; stewardship.	Rural residents and students gain awareness and understanding of their watersheds.	Focus is still primarily on Washington's west side.
WDFW needs to educate about management of TES species.	Public is aware of consequences of becoming rare, jeopardized, restricted in distribution etc. and we	More expensive, poor use of limited resources, futility of long list of species.
WDFW needs to educate community leaders and agency staff about value of working together on behalf of common values surrounding sense of place, wildlands and wild living things that stir the human spirit and make the planet a home.	Respect for other living things becomes a priority for the human condition.	It will be a very lonely place without some biological diversity.
WDFW needs to educate/engage in dialogue with range of ethnic groups of fish, wildlife and habitat concerns and values.		Studies from other states indicate for example that few Hispanics in Texas have visited a National park or wildlife refuge within their life. Why should they vote to support fish and wildlife conservation and management.
What specifically harms streams and wetlands.	They can avoid it.	Landowners often harm the environment unknowingly.
Why they should, and how they can, protect natural resources.	The harmful effects of human impacts can be lessened.	Too many people have a me-first-now attitude and don't see the need/payoff to spending their time, energy, or money in an effort to protect natural resources.
Wildlife ecology and habitat preservation or restoration.	Wildlife and people may live together in a sustainable environment.	Growth development rarely consider wildlife requirements.
Elementary school students		
All fish and wildlife and their habitats.	Students can educate their parents of keeping common animals common.	Our quality of life is linked to our environment.
All hunting, fishing, and wildlife related activities.	People are concerned about nature, but not anti-hunting.	Many people don't care, and others are against hunting.
Depletion of and damage to natural resources including water quality and animal/fish species, etc..	They will realize the possibility of losing them forever and will become committed to conservation measures because they have experienced them in person and been involved in hands-on	Young people who have not been out in the woods, fields, and by the water themselves and experienced the damage to natural resources do not know (or care) what common, everyday activities do to our environment and ecological balance!.
Environmental stewardship.	Fish and wildlife resources can be appreciated and protected by everyone.	We tend to value what we understand.
Estuarine and marine environments.	These nursery areas which support multiple links in the food web will be protected.	Development and pollution threaten these ecosystems.
Good education techniques which engage the public.	The public are satisfied with WDFW feedback from employees.	WDFW employees are reticent to work with the public even with presentation tools
Knowledge of their role in maintaining wildlife diversity.	Students and families can support birds, including Neotropical migrants, herps and other wildlife dependent on their community.	Students need to know what lives around the, and learn to collect data and monitor on a regular basis, using WDFW species presence information when relevant.
Our waters are being polluted such that we are changing the balance of our environment.	That students will be aware and will change behaviors that will ensure the preservation of existing species.	People are unaware that what they do adversely impacts our environment.
Salmon as critical early indicators of ecosystem health.	Kids learn to link actions with consequences.	Informed decisions require educated decision makers.
Students need information about salmon and related issues at a level they can read.	Young students have relevant materials at their reading level which is appropriate for them.	There's so much interest about fish in the news lets take advantage of the interest. Start young and maintain the interest.
The benefits of state/tribal co-management.	Get back on track...the same track.	Co-management, a critical element of salmon recovery, etc., is off track and has been for several years.
The detrimental effects of diking rivers and streams.	Fish and wildlife habitats are better protected and better growth management and land use decisions and regulations will prevail.	Diking drastically alters the alluvial processes and vegetation that create some of the most critical habitat for fish and wildlife. In the long run diking can create more problems than it solves, particularly when dikes inevitably fail during a flood.
The Endangered Species Act.	Students know that the laws passed are trying to save something that we are not taking care of.	Pesticides and fertilizers as well as used motor oil and pet waste are being dumped into our local waters.
The importance of wild fish.	All reasonable measures can be taken to ensure additional wild salmonids are saved from extinction.	Citizens need to stop viewing salmon as simply something to consume.
The interrelationships of critters in a healthy, functioning	They learn to appreciate species diversity and	Education influences behavior.

	ecosystem.		
	The role of the environment, fish and wildlife in providing quality of life.	Young students will begin a lifetime of caring about the fish and wildlife in the places where they live, creating habitat in their backyards and community areas, and enjoying outdoor recreation including watching	Young students of color are not active participants in outdoor recreation, and feel excluded from conservation efforts at schools, and in the community, where environmental action seems to be dominated
	The value of volunteers who can contribute to their work as stewards.	Volunteers can contribute to WDFW research and conservation measures that meet the mandate.	WDFW employees need to have more faith and confidence in the value of employees through training on how to work with
	This study has not addressed the seal predation problem or the Corp introduced birds predating on the Columbia	These predators can be included in the formulas, encourage the native American population to adhere to the sealing portion of their treaty.	Both the seals and bird in the Columbia need to be controlled to reduce predation.
Secondary school students			
	Fish habitat needs.	Native fish stocks improve.	Building and managing land in flood plains and along surface waters is ignoring effects on fish habitat; students at the high school level need to be aware of this before they are ready to purchase land, a home, etc.
	How to use fish and wildlife as a topic to connect students to where they live.	Students will work throughout the year to develop a full picture of fish and wildlife in their community so they can plan for fish and wildlife in their	Students through trained teachers can actively inventory their community and use this information to look at local government growth management plans, and problem solve for local governments.
	Salmons role and importance in the Pacific Northwest regional ecosystem.	Students see themselves as active participants in protecting their environments.	Personal commitments are needed to influence behavior.
	The major problems affecting the struggling salmon	The same mistakes are not made in the future.	Blame is irrelevant, problems exist and need to get fixed, even at the expense of those who have no blame.
	What youth can do to determine a future for fish and wildlife.	Youth get involved with community policy planning, and work on projects which directly impact the future of fish and wildlife.	Through a service learning approach, youth can explore the policies of their communities that protect fish & wildlife, learn how to create policy which would protect fish and wildlife. Youth can plan an project which

Hunter Education Issues

	Issue	**Outcome**	**Behavior Change**
Adults - informed			
	Archery hunting.	Archers take competent shots at animals.	
	Archery hunting.	They take close range shots for a kill.	There seems to be a lot of wastage of animals during this season. It is fairly common to see cows walking around with arrows in them. Two different firearm hunters shot two different bulls. one had one arrow in it and the other had two--one from this.
	Junk left in camps.	Their camp looks clean when they go home.	It makes the rest of us hunters all look like a bunch of slobs!
	The next higher level of actions they can take to protect fish and wildlife habitat and prevent pollution to ensure sustainable ecosystems for us all.	They will know how and want to make these improvements in their habits.	These are the folks who are already on your side and the decisions they make influence the community now. (That's what the young students will inherit, and unless we leave them with something to work with, it's a moot
	The volunteerism opportunities available.	The public can be further education about natural resource issues.	The department doesn't have adequate staff to do as much as needs to be done.
Adults - novice			
	Economic benefits that fish and wildlife lands and recreation contribute to national and sate economies. Also significance to rural communities, proximity to public lands, existing 1-2 layer economies, ripple effect of expenditures in rural economy.	Even the most basic human appeal/argument is laid before the public - wildlife makes	Americans appreciate a good deal!!
	Hunting must be conducted in the most ethical and highest standards beyond the written rules.	All hunters may project a better image to the public and other hunters.	Hunters need to realize that societal views are changing and traditional values such as hunting may need some modification to survive. A case in point may be bear hunting over bait. Hunters may vigorously defend this issue and win the battle, but lo…
	Over harvesting of any natural resource.	Harvesting on a much more limited bases than is presently exercised.	Everyone needs to understand that we cant keep blaming industry for the ills being experienced with fish and wildlife. Name a natural resource that is the same as when white men showed up in the Pacific
	There is a limit to the available resources that provide hunting opportunity.	Hunting is not a God given right but a privilege. The annual surplus of animals available for harvest must not be exceeded. Hunting seasons must be supported by good science that confirms a surplus available for harvest.	Opportunities will require better training, limited opportunity and probably higher cost because the funding for management is linked to user fees.
	WDFW needs to educate community leaders and agency staff about value of working together on behalf of common values surrounding sense of place, wildlands and wild living things that stir the human spirit and make the planet a home.	Respect for other living things becomes a priority for the human condition.	It will be a very lonely place without some biological diversity.

Elementary school students			
	The fact that hunting and fishing is a respectful family activity and that it is not about the demise of a species but it is effective fish and wildlife	Society might return to a family activity that doesn't revolve around either the movie industry or television.	
Elementary school students			
	All fish and wildlife and their habitats.	Students can educate their parents of keeping common animals common.	Our quality of life is linked to our
	All hunting, fishing, and wildlife related activities.	People are concerned about nature, but not anti-hunting.	Many people don't care, and others are against hunting.
	Good education techniques which engage the public.	The public are satisfied with WDFW feedback from employees.	WDFW employees are reticent to work with the public even with presentation tools available.
	Gun safety.	No more accidental or stupid shootings.	Too many young kids think that a gun is a toy.
	How hunting is a desirable way to help manage our wildlife.	The future of hunting is not in jeopardy.	Current classroom curriculum in general portrays hunting in a negative light.
	Hunting and fishing and why it is necessary right.	We can continue our hunting heritage.	That hunting is barbaric, and inhumane.
	Hunting as a legitimate activity.	They may be informed.	Hunting is not an immoral activity.
	Hunting-	Hunting is a heritage and the economic as well as environmental importance of being able to manage species of animals through hunting.	PAWS and PETA are flooding our schools with anti-hunting propaganda and our children and their teachers need to understand the biological importance of sound wildlife management's need.
	Natural selection i.e. in context of normal winter kill and game populations.	Less non-hunters become anti-hunters.	Kids are being taught in school how terrible hunting and firearms are. They need to educate about game, hunting and firearm safety.
	The value of volunteers who can contribute to their work as stewards.	Volunteers can contribute to WDFW research and conservation measures that meet the mandate.	WDFW employees need to have more faith and confidence in the value of employees through training on how to work with
Secondary school students			
	Hunting & Fishing ethics.	Informed, responsible sportsmen & sportswomen.	Leaving trash behind. Tossing beverage containers everywhere.
	The need for consumptive use of our wildlife resource.	Wildlife management is based on science and not uninformed public opinion.	John Q Public is unaware that wildlife management is dependant on the participation of the hunters, fisherman and trappers. Without their participation and financial support the wildlife resource will WDFW may fund to contribute .

Marine Education Issues

	Issue	**Outcome**	**Behavior Change**
Adults - informed			
	The importance of involving tribes in all restoration efforts, because they are co-managers.	Tribal and non-tribal groups develop partnerships that result in cooperative, more effective restoration.	Non-tribal groups (including government agencies) often exclude tribes or do not involve them meaningfully in restoration. Restoration projects that are taking place right now without meaningful tribal involvement and input run the risk of not being .
	The next higher level of actions they can take to protect fish and wildlife habitat and prevent pollution to ensure sustainable ecosystems for us all.	They will know how and want to make these improvements in their habits.	These are the folks who are already on your side and the decisions they make influence the community now. (That's what the young students will inherit, and unless we leave them with something to work with, it's a moot
	Their actual and potential effects on fish and wildlife.	They become aware of their threat to sensitive populations.	Enforcement is a less-desirable alternative to education and change.
Adults - novice			
	Aquaculture.	Attitudes and knowledge of aquaculture is based upon fact and current knowledge.	Currently much of the public and many primary and secondary educators have opinions based upon misinformation, conjecture and emotion rather than fact.
	Daily life style activities that impact wildlife, little information on the value/importance of our natural	Individuals engage in more thoughtful, conservation activities.	Of unregulated hunting and fishing, dogs impacting salmon spawning beds, disturbing wildlife in general, off-road vehicles in natural areas, over use of our parks.
	Unclassified marine invertebrates and fish.	Populations and habitats are protected.	Casual collecting, beach trampling, and educational collecting is depleting populations to the critical level and damaging habitats.
	Watershed awareness; stewardship.	Rural residents and students gain awareness and understanding of their watersheds.	Focus is still primarily on Washington's west side.
	WDFW needs to educate community leaders and agency staff about value of working together on behalf of common values surrounding sense of place, wildlands and wild living things that stir the human spirit and make the planet a home.	Respect for other living things becomes a priority for the human condition.	It will be a very lonely place without some biological diversity.
	WDFW needs to educate/engage in dialogue with range of ethnic groups of fish, wildlife and habitat concerns and values.		Studies from other states indicate for example that few Hispanics in Texas have visited a National park or wildlife refuge within their life. Why should they vote to support fish and wildlife conservation and management.
	Why they should, and how they can, protect natural resources.	The harmful effects of human impacts can be lessened.	Too many people have a me-first-now attitude and don't see the need/payoff to spending their time, energy, or money in an effort to protect natural resources.
	Wildlife ecology and habitat preservation or restoration.	Wildlife and people may live together in a sustainable	Growth development rarely consider wildlife requirements.

		environment.	
Elementary school students			
	All fish and wildlife and their habitats.	Students can educate their parents of keeping common animals common.	Our quality of life is linked to our
	Depletion of and damage to natural resources including water quality and animal/fish species, etc..	They will realize the possibility of losing them forever and will become committed to conservation measures because they have experienced them in person and been involved in hands-on activities with them.	Young people who have not been out in the woods, fields, and by the water themselves and experienced the damage to natural resources do not know (or care) what common, everyday activities do to our environment and ecological balance!.
	Environmental stewardship.	Fish and wildlife resources can be appreciated and protected by everyone.	We tend to value what we understand.
	Estuarine and marine environments.	These nursery areas which support multiple links in the food web will be protected.	Development and pollution threaten these ecosystems.
	Good education techniques which engage the public.	The public are satisfied with WDFW feedback from employees.	WDFW employees are reticent to work with the public even with presentation tools available.
	Harvesting marine resources.	Minority communities harvest marine resources responsibly.	Minority communities do not have access to information they can understand, and they need to where to harvest, how to cook safely, and what the limit is an why.
	Our waters are being polluted such that we are changing the balance of our environment.	That students will be aware and will change behaviors that will ensure the preservation of existing species.	People are unaware that what they do adversely impacts our environment.
	Safe and responsible harvesting of marine resources.	Marine resource community users will harvest on open beaches only, observing the required takings limit.	Currently API harvesters are not observing the regulations limiting harvest and harvesting in closed areas.
	Students need information about salmon and related issues at a level they can read!	Young students have relevant materials at their reading level which is appropriate for them about fish and habitat.	There's so much interest about fish in the news lets take advantage of the interest. Start young and maintain the interest.
	The benefits of state/tribal co-management.	Get back on track...the same track.	Co-management, a critical element of salmon recovery, etc., is off track and has been for several years.
	The interrelationships of critters in a healthy, functioning ecosystem.	They learn to appreciate species diversity and interdependence.	Education influences behavior.
	The role of the environment, fish and wildlife in providing quality of life.	Young students will begin a lifetime of caring about the fish and wildlife in the places where they live, creating habitat in their backyards and community areas, and enjoying outdoor recreation including watching wildlife.	Young students of color are not active participants in outdoor recreation, and feel excluded from conservation efforts at schools, and in the community, where environmental action seems to be dominated by white
Secondary school students			
	What youth can do to determine a future for fish and wildlife.	Youth get involved with community policy planning, and work on projects which directly impact the future of fish and wildlife.	Through a service learning approach, youth can explore the policies of their communities that protect fish & wildlife, learn how to create policy which would protect fish and wildlife. Youth can plan an project which WDFW may fund.

Multi-cultural Education Issues

	Issue	**Outcome**	**Behavior Change**
Adults - informed			
	The importance of involving tribes in all restoration efforts, because they are co-managers.	Tribal and non-tribal groups develop partnerships that result in cooperative, more effective restoration.	Non-tribal groups (including government agencies) often exclude tribes or do not involve them meaningfully in restoration. Restoration projects that are taking place right now without meaningful tribal involvement and input run the risk of not being .
	Their actual and potential effects on fish and wildlife.	They become aware of their threat to sensitive populations.	Enforcement is a less-desirable alternative to education and change.
Adults - novice			
	Daily life style activities that impact wildlife, little information on the value/importance of our natural	Individuals engage in more thoughtful, conservation activities.	Of unregulated hunting and fishing, dogs impacting salmon spawning beds, disturbing wildlife in general, off-road vehicles in natural areas, over use of our parks.
	Watershed awareness; stewardship.	Rural residents and students gain awareness and understanding of their watersheds.	Focus is still primarily on Washington's west side.
	WDFW needs to educate/engage in dialogue with range of ethnic groups of fish, wildlife and habitat concerns and values.		Studies from other states indicate for example that few Hispanics in Texas have visited a National park or wildlife refuge within their life. Why should they vote to support fish and wildlife conservation and management.
	Why they should, and how they can, protect natural resources.	The harmful effects of human impacts can be lessened.	Too many people have a me-first-now attitude and don't see the need/payoff to spending their time, energy, or money in an effort to protect natural resources.
Elementary school students			
	Good education techniques which engage the public.	The public are satisfied with WDFW feedback from employees.	WDFW employees are reticent to work with the public even with presentation tools available.
	Harvesting marine resources.	Minority communities harvest marine resources responsibly.	Minority communities do not have access to information they can understand, and they need to where to harvest, how to cook safely,

			and what the limit is an why.
	Safe and responsible harvesting of marine resources.	Marine resource community users will harvest on open beaches only, observing the required takings limit.	Currently API harvesters are not observing the regulations limiting harvest and harvesting in closed areas.
	The role of the environment, fish and wildlife in providing quality of life.	Young students will begin a lifetime of caring about the fish and wildlife in the places where they live, creating habitat in their backyards and community areas, and enjoying outdoor recreation including watching wildlife.	Young students of color are not active participants in outdoor recreation, and feel excluded from conservation efforts at schools, and in the community, where environmental action seems to be dominated by white

Public Affairs Issues

	Issue	**Outcome**	**Behavior Change**
Adults - informed			
	Develop programs and tools such as video presentations and slide shows to be used possibly by public broadcasting, fish and wildlife officers and other department employees in educating the public about the department.	The public will become better informed about the mission and goals of the department.	Currently employees avoid public contacts like the plague because they don't feel comfortable speaking in front of large groups, and public television has no material.
	Growth management.	Local policies and regulations better protect fish and wildlife resources.	Many current policies and regulations are mediocre.
	Lack of funding for Wildlife Area maintenance and improvements for hunting /non hunting patrons.	They can provide support for the legislature to provide proper funding.	Apathy towards maintaining funding of our natural areas.
	The importance of involving tribes in all restoration efforts, because they are co-managers.	Tribal and non-tribal groups develop partnerships that result in cooperative, more effective restoration.	Non-tribal groups (including government agencies) often exclude tribes or do not involve them meaningfully in restoration. Restoration projects that are taking place right now without meaningful tribal involvement and input run the risk of not being .
	The volunteerism opportunities available.	The public can be further education about natural resource issues.	The department doesn't have adequate staff to do as much as needs to be done.
	Trusting professional fish & wildlife managers.	They can do the work that they have been entrusted to do.	Armchair biologists and political meddling have severely reduced the effectiveness of this agency.
	WDFW - what it does. Not only game but non-game activities & support.	Realize what wildlife is & that WDFW is there for all wildlife.	This will strengthen WDFW'S support base & get new citizens involved with wildlife.
Adults - novice			
	County response the governors salmon plan.	Counties can develop GIS based information systems that will allow the counties to show that they are making progress in conserving and restoring our salmon and other natural resources.	Currently there is no coordination between local natural resource issue responses.
	Department Fish and Wildlife Programs.	They better understand the role the agency plays in the state.	Tax payers fund the programs ultimately and should know their value.
	Funding WDFW&W.	We all share the responsibility of funding the necessary functions of this vital Dept..	License revenue needs to be augmented more heavily by the general fund as far more users impact this Dept. than just sportsmen and women.
	Impact of development on Washington's wildlife.	Citizens of Washington can understand the impacts of development, learn how to fight those impacts, and learn responsible growth management practices.	Development has the upper hand in Washington at the expense of wildlife. We need to empower the people to demand responsible growth management so that development does not always have the upper hand and does not replace our wildlife legacy.
	Land use decisions that impact fish and wildlife.	They can understand and support department programs and influence legislators to fund appropriately.	Apathy or misinformed input.
	The whole truth as is presently known about the problems with our fish.	Action can be taken to remedy the situation regardless of who it impacts.	Everyone who has a stake in fish is pointing the finger at someone else when it does not matter if the innocent get hurt if that is what it takes to solve the problems.
	Why they should, and how they can, protect natural resources.	The harmful effects of human impacts can be lessened.	Too many people have a me-first-now attitude and don't see the need/payoff to spending their time, energy, or money in an effort to protect natural resources.
Elementary school students			
	The benefits of state/tribal co-management.	Get back on track...the same track.	Co-management, a critical element of salmon recovery, etc., is off track and has been for several years.
	The importance of wild fish.	All reasonable measures can be taken to ensure additional wild salmonids are saved from extinction.	Citizens need to stop viewing salmon as simply something to consume.
	Wildlife Management - How people are a part of sound management.	People in the general public understand the importance of Hunting and fishing in order to regulate wildlife populations and control large positive and negative variances.	Some individuals do not understand mans/women's role in the environment.
Fish and Wildlife Officers			
	The importance of speaking to school-age groups and the impact an officer will have on that age level.	Public education fish and wildlife issues will be a topic for discussion and those values will reach the ears of young	The officers still believe it is better, more fun and easier to catch someone with a short fish, than it is to speak to a hundred kids, and they are not seeing the real value in public

			education.
Secondary school students			
	The fact that there is a Department and why it is even there. Most are so influence by Hollywood that there is no legitimate concept given to them regarding the Department and its role.	There will be a future for wildlife uses, such as hunting, fishing, trapping, etc., and not just watching - this occurs enough as it is.	There has been a loss of hand-me-down practical information available to the general public.

Urban Issues

	Issue	**Outcome**	**Behavior Change**
Adults - informed			
	WDFW - what it does. Not only game but non-game activities & support.	Realize what wildlife is & that WDFW is there for all wildlife.	This will strengthen WDFW'S support base & get new citizens involved with wildlife.
Adults - novice			
	Daily life style activities that impact wildlife, little information on the value/importance of our natural	Individuals engage in more thoughtful, conservation activities.	Of unregulated hunting and fishing, dogs impacting salmon spawning beds, disturbing wildlife in general, off-road vehicles in natural areas, over use of our parks.
	Impact of development on Washington's wildlife.	Citizens of Washington can understand the impacts of development, learn how to fight those impacts, and learn responsible growth management practices.	Development has the upper hand in Washington at the expense of wildlife. We need to empower the people to demand responsible growth management so that development does not always have the upper hand and does not replace our wildlife legacy.
	Native wildlife commonly found in urban and suburban areas.	They will understand more about the natural world that they encounter and not be afraid of animals like geese, muskrats, bats and coyotes and that they wont feed these animals and create more problems for people and animals.	People that understand about the animals around them will be less likely to call upon the department for inappropriate management and may be less likely to support inappropriate management initiatives and may be more likely to support department.
	Practicing low impact wildlife and wildlands practices.	Remaining wild areas and wildlife remain as wild and unspoiled as possible with growing popularity of outdoor recreation.	More Americans are recreating outdoors than ever and trend is expected to continue for decades.
	The effect of urban sprawl and agricultural practices on fish and game habitat.	Further degradation of habitat is stopped.	The idea that development is beneficial progress.
	WDFW needs to educate about importance of reptiles and amphibians in Washington ecosystems.	Herps remain a functioning part of the Washington landscape.	Reptiles and amphibians are part of our invisible state fauna, rarely seen and little known about them at technical and lay person levels.
	WDFW needs to educate public about watchable wildlife sites and activities.	Public can engage in pursuit of and recreation aimed at enjoying fish and wildlife in other ways besides angling and hunting.	American public is changing, hunters are aging, seasons are more limited, perhaps even shorter, urban component of population is growing, gender ratio is 50:50 with watchable wildlife, wildlife watching is big business, good for local economies.
	WDFW needs to educate/engage in dialogue with range of ethnic groups of fish, wildlife and habitat concerns and values.		Studies from other states indicate for example that few Hispanics in Texas have visited a National park or wildlife refuge within their life. Why should they vote to support fish and wildlife conservation and management.
	Why they should, and how they can, protect natural resources.	The harmful effects of human impacts can be lessened.	Too many people have a me-first-now attitude and don't see the need/payoff to spending their time, energy, or money in an effort to protect natural resources.
Adults - novice			
	Landscaping and other land management activities that affect wildlife.	Professionals that provide advice and design help can be informed.	Students are graduating after two, four, and six years of college without a general understanding of how to incorporate ecological principles in their design and consultation work.
Elementary school students			
	All hunting, fishing, and wildlife related activities.	People are concerned about nature, but not anti-hunting.	Many people don't care, and others are against hunting.
	Emerging trend of watchable wildlife recreation.	General awareness of some new uses and users and changing American values toward fish and wildlife.	Habitat is key and common ground among/between fish and wildlife users and that needs to be a shared vision regardless of other areas of difference.
	Knowledge of their role in maintaining wildlife diversity.	Students and families can support birds, including Neotropical migrants, herps and other wildlife dependent on their community.	Students need to know what lives around the, and learn to collect data and monitor on a regular basis, using WDFW species presence information when relevant.
	The role of the environment, fish and wildlife in providing quality of life.	Young students will begin a lifetime of caring about the fish and wildlife in the places where they live, creating habitat in their backyards and community areas, and enjoying outdoor recreation including watching wildlife.	Young students of color are not active participants in outdoor recreation, and feel excluded from conservation efforts at schools, and in the community, where environmental action seems to be dominated by white
	The value of volunteers who can contribute to their work as stewards.	Volunteers can contribute to WDFW research and conservation measures that meet the mandate.	WDFW employees need to have more faith and confidence in the value of employees through training on how to work with

Watchable Wildlife Issues

	Issue	Outcome	Behavior Change
Adults - informed			
	Lack of Funding for Wildlife area Maintenance and improvements for Hunting /non hunting patrons.	They can provide support for the legislature to provide proper funding.	Apathy towards maintaining funding of our natural areas.
	The need for baseline data on department and other lands.	They may organize and contribute useful information.	WDFW has insufficient staff/expertise to obtain such information.
	The next higher level of actions they can take to protect fish and wildlife habitat and prevent pollution to ensure sustainable ecosystems for us all.	They will know how and want to make these improvements in their habits.	These are the folks who are already on your side and the decisions they make influence the community now. (That's what the young students will inherit, and unless we leave them with something to work with, it's a moot
	The volunteerism opportunities available.	The public can be further education about natural resource issues.	The department doesn't have adequate staff to do as much as needs to be done.
	WDFW - what it does. Not only game but non-game activities & support.	Realize what wildlife is & that WDFW is there for all wildlife.	This will strengthen WDFW'S support base & get new citizens involved with wildlife.
Adults - novice			
	Daily life style activities that impact wildlife, little information on the value/importance of our natural	Individuals engage in more thoughtful, conservation activities.	Of unregulated hunting and fishing, dogs impacting salmon spawning beds, disturbing wildlife in general, off-road vehicles in natural areas, over use of our parks.
	Economic benefits that fish and wildlife lands and recreation contribute to national and sate economies. Also significance to rural communities, proximity to public lands, existing 1-2 layer economies, ripple effect of expenditures in rural economy.	Even the most basic human appeal/argument is laid before the public - wildlife makes	Americans appreciate a good deal!!
	Impact of development on Washington's wildlife.	Citizens of Washington can understand the impacts of development, learn how to fight those impacts, and learn responsible growth management practices.	Development has the upper hand in Washington at the expense of wildlife. We need to empower the people to demand responsible growth management so that development does not always have the upper hand and does not replace our wildlife legacy.
	Loss of habitat and watershed hydrology.	They will be ready to support projects which restore habitat and prevent local flooding.	Many do not realize the impact that development and impervious surfaces have on a watershed and are not willing to pay for remedies.
	Native wildlife commonly found in urban and suburban areas.	They will understand more about the natural world that they encounter and not be afraid of animals like geese, muskrats, bats and coyotes and that they wont feed these animals and create more problems for people and animals.	People that understand about the animals around them will be less likely to call upon the department for inappropriate management and may be less likely to support inappropriate management initiatives and may be more likely to support department.
	Practicing low impact wildlife and wildlands practices.	Remaining wild areas and wildlife remain as wild and unspoiled as possible with growing popularity of outdoor recreation.	More Americans are recreating outdoors than ever and trend is expected to continue for decades.
	The continental habitat connection with many of our migratory birds.	Public can act locally, think globally about wildlife and wildlands.	Many species require inter continental resources to survive.
	Watershed awareness; stewardship.	Rural residents and students gain awareness and understanding of their watersheds.	Focus is still primarily on Washington's west side.
	WDFW needs to educate about importance of reptiles and amphibians in Washington ecosystems.	Herps remain a functioning part of the Washington landscape.	Reptiles and amphibians are part of our invisible state fauna, rarely seen and little known about them at technical and lay person levels.
	WDFW needs to educate about management of TES species.	Public is aware of consequences of becoming rare, jeopardized, restricted in distribution etc. and we (society) aim to avoid.	More expensive, poor use of limited resources, futility of long list of species.
	WDFW needs to educate public about watchable wildlife sites and activities.	Public can engage in pursuit of and recreation aimed at enjoying fish and wildlife in other ways besides angling and hunting.	American public is changing, hunters are aging, seasons are more limited, perhaps even shorter, urban component of population is growing, gender ratio is 50:50 with watchable wildlife, wildlife watching is big business, good for local economies.
	Why they should, and how they can, protect natural resources.	The harmful effects of human impacts can be lessened.	Too many people have a me-first-now attitude and don't see the need/payoff to spending their time, energy, or money in an effort to protect natural resources.
Elementary school students			
	All fish and wildlife and their habitats.	Students can educate their parents of keeping common animals common.	Our quality of life is linked to our
	All hunting, fishing, and wildlife related activities.	People are concerned about nature, but not anti-hunting.	Many people don't care, and others are against hunting.
	Depletion of and damage to natural resources including water quality and animal/fish species, etc..	They will realize the possibility of losing them forever and will become committed to conservation measures because they have experienced them in person and been involved in hands-on activities with them.	Young people who have not been out in the woods, fields, and by the water themselves and experienced the damage to natural resources do not know (or care) what common, everyday activities do to our environment and ecological balance!.
	Emerging trend of watchable wildlife recreation.	General awareness of some new uses and users and changing American values toward fish and wildlife.	Habitat is key and common ground among/between fish and wildlife users and that needs to be a shared vision regardless of other areas of difference.
	Estuarine and marine environments.	These nursery areas which support multiple links in the food web will be protected.	Development and pollution threaten these ecosystems.

	Knowledge of their role in maintaining wildlife diversity.	Students and families can support birds, including Neotropical migrants, herps and other wildlife dependent on their community.	Students need to know what lives around the, and learn to collect data and monitor on a regular basis, using WDFW species presence information when relevant.
	The role of the environment, fish and wildlife in providing quality of life.	Young students will begin a lifetime of caring about the fish and wildlife in the places where they live, creating habitat in their backyards and community areas, and enjoying outdoor recreation including watching wildlife.	Young students of color are not active participants in outdoor recreation, and feel excluded from conservation efforts at schools, and in the community, where environmental action seems to be dominated by white
	The value of volunteers who can contribute to their work as stewards.	Volunteers can contribute to WDFW research and conservation measures that meet the mandate.	WDFW employees need to have more faith and confidence in the value of employees through training on how to work with

Wildlife/Watershed Issues

	Issue	Outcome	Behavior Change
Adults - informed			
	The importance of involving tribes in all restoration efforts, because they are co-managers.	Tribal and non-tribal groups develop partnerships that result in cooperative, more effective restoration.	Non-tribal groups (including government agencies) often exclude tribes or do not involve them meaningfully in restoration. Restoration projects that are taking place right now without meaningful tribal involvement and input run the risk of not being .
	The need for baseline data on department and other lands.	They may organize and contribute useful information.	WDFW has insufficient staff/expertise to obtain such information.
	The next higher level of actions they can take to protect fish and wildlife habitat and prevent pollution to ensure sustainable ecosystems for us all.	They will know how and want to make these improvements in their habits.	These are the folks who are already on your side and the decisions they make influence the community now. (That's what the young students will inherit, and unless we leave them with something to work with, it's a moot
	The volunteerism opportunities available.	The public can be further education about natural resource issues.	The department doesn't have adequate staff to do as much as needs to be done.
	Their actual and potential effects on fish and wildlife.	They become aware of their threat to sensitive populations.	Enforcement is a less-desirable alternative to education and change.
	WDFW - what it does. Not only game but non-game activities & support.	Realize what wildlife is & that WDFW is there for all wildlife.	This will strengthen WDFW'S support base & get new citizens involved with wildlife.
Adults - novice			
	Actions they can take to protect fish and wildlife habitat and prevent pollution to ensure sustainable ecosystems (like fencing away from streams, using less water, planting riparian zones, leaving cover in hedgerows, gleanings in fields, etc.).	They will know how and want to make these improvements in their habits.	These are the folks who are making a big difference with the land they manage and many of them have a land ethic you can build on.
	County response the governors salmon plan.	Counties can develop GIS based information systems that will allow the counties to show that they are making progress in conserving and restoring our salmon and other natural resources.	Currently there is no coordination between local natural resource issue responses.
	Culvert blockages.	Salmon will be able to pass through them.	Currently there are many barriers to fish passage.
	Fish habitat restoration.	A more educated population with regards to salmon habitat.	People need to know what they can do to help fish in their every day lives.
	Loss of habitat and watershed hydrology.	They will be ready to support projects which restore habitat and prevent local flooding.	Many do not realize the impact that development and impervious surfaces have on a watershed and are not willing to pay for remedies.
	Native wildlife commonly found in urban and suburban areas.	They will understand more about the natural world that they encounter and not be afraid of animals like geese, muskrats, bats and coyotes and that they wont feed these animals and create more problems for people and animals.	People that understand about the animals around them will be less likely to call upon the department for inappropriate management and may be less likely to support inappropriate management initiatives and may be more likely to support department.
	Over harvesting of any natural resource.	Harvesting on a much more limited bases than is presently exercised.	Everyone needs to understand that we cant keep blaming industry for the ills being experienced with fish and wildlife. Name a natural resource that is the same as when white men showed up in the Pacific
	Practicing low impact wildlife and wildlands practices.	Remaining wild areas and wildlife remain as wild and unspoiled as possible with growing popularity of outdoor recreation.	More Americans are recreating outdoors than ever and trend is expected to continue for decades.
	Preserving riparian zones on their property.	Preserve wildlife habitat, fish habitat.	People create lawns down to the
	Salmon habitat & water resource protection.	We have clean waterways and healthy salmon runs.	People use pesticides, degrade habitat, damage their private properties with salmon streams, etc. .
	Selective fisheries.	The fishing public is aware that during a selective fishery only adipose marked salmon can be retained.	Currently marked and unmarked salmon can be retained in Puget Sound during salmon openings. The public needs to be educated about upcoming selective fisheries, how to spot a marked fish and how to properly release an unmarked fish, if selective fish.
	Shoreline management.	They will replant and maintain native vegetation on the shorelines.	Current practices are endangering salmon and other native wildlife such as songbirds and encouraging problems such as Canada geese

			and allowing herbicides and pesticides to run off into the water affecting water quality for
	The drastic decline in salmon numbers.	The people understand the magnitude of decline and the biological value the salmon have.	People don't understand that the salmon are a direct result of their individual behavior patterns of consumerism.
	The effect of urban sprawl and agricultural practices on fish and game habitat.	Further degradation of habitat is stopped.	The idea that development is beneficial progress.
	The needs of wild salmon.	Streams will have healthy riparian areas.	Flood control prevents connectivity of the river to its flood plain.
	The whole truth as is presently known about the problems with our fish.	Action can be taken to remedy the situation regardless of who it impacts.	Everyone who has a stake in fish is pointing the finger at someone else when it does not matter if the innocent get hurt if that is what it takes to solve the problems.
	The continental habitat connection with many of our migratory birds.	Public can act locally, think globally about wildlife and wildlands.	Many species require inter continental resources to survive.
	Watershed awareness; stewardship.	Rural residents and students gain awareness and understanding of their watersheds.	Focus is still primarily on Washington's west side.
	WDFW needs to educate about importance of reptiles and amphibians in Washington ecosystems.	Herps remain a functioning part of the Washington landscape.	Reptiles and amphibians are part of our invisible state fauna, rarely seen and little known about them at technical and lay person levels.
	WDFW needs to educate about importance of wildlife tolerant management regimes on private working timber and agricultural lands.	Fish and wildlife do not become isolated on public lands islands requiring more intensive management to assure survival.	Washington has large amounts of key lands (low- mid elevation forests, shrub-steppe etc., in private ownership.
	WDFW needs to educate about management of TES species.	Public is aware of consequences of becoming rare, jeopardized, restricted in distribution etc. and we (society) aim to avoid.	More expensive, poor use of limited resources, futility of long list of species.
	WDFW needs to educate community leaders and agency staff about value of working together on behalf of common values surrounding sense of place, wildlands and wild living things that stir the human spirit and make the planet a home.	Respect for other living things becomes a priority for the human condition.	It will be a very lonely place without some biological diversity.
	WDFW needs to educate public about watchable wildlife sites and activities.	Public can engage in pursuit of and recreation aimed at enjoying fish and wildlife in other ways besides angling and hunting.	American public is changing, hunters are aging, seasons are more limited, perhaps even shorter, urban component of population is growing, gender ratio is 50:50 with watchable wildlife, wildlife watching is big business, good for local economies.
	WDFW needs to educate/engage in dialogue with range of ethnic groups of fish, wildlife and habitat concerns and values.		Studies from other states indicate for example that few Hispanics in Texas have visited a National park or wildlife refuge within their life. Why should they vote to support fish and wildlife conservation and management.
	What specifically harms streams and wetlands.	They can avoid it.	Landowners often harm the environment unknowingly.
	Why they should, and how they can, protect natural resources.	The harmful effects of human impacts can be lessened.	Too many people have a me-first-now attitude and don't see the need/payoff to spending their time, energy, or money in an effort to protect natural resources.
	Wildlife ecology and habitat preservation or restoration.	Wildlife and people may live together in a sustainable environment.	Growth development rarely consider wildlife requirements.
Adults - novice			
	Landscaping and other land management activities that affect wildlife.	Professionals that provide advice and design help can be informed.	Students are graduating after two, four, and six years of college without a general understanding of how to incorporate ecological principles in their design and consultation work.
Elementary school students			
	All fish and wildlife and their habitats.	Students can educate their parents of keeping common animals common.	Our quality of life is linked to our
	All hunting, fishing, and wildlife related activities.	People are concerned about nature, but not anti-hunting.	Many people don't care, and others are against hunting.
	Depletion of and damage to natural resources including water quality and animal/fish species, etc..	They will realize the possibility of losing them forever and will become committed to conservation measures because they have experienced them in person and been involved in hands-on activities with them.	Young people who have not been out in the woods, fields, and by the water themselves and experienced the damage to natural resources do not know (or care) what common, everyday activities do to our environment and ecological balance!.
	Emerging trend of watchable wildlife recreation.	General awareness of some new uses and users and changing American values toward fish and wildlife.	Habitat is key and common ground among/between fish and wildlife users and that needs to be a shared vision regardless of other areas of difference.
	Environmental stewardship.	Fish and wildlife resources can be appreciated and protected by everyone.	We tend to value what we understand.
	Estuarine and marine environments.	These nursery areas which support multiple links in the food web will be protected.	Development and pollution threaten these ecosystems.
	Good education techniques which engage the public.	The public are satisfied with WDFW feedback from employees.	WDFW employees are reticent to work with the public even with presentation tools available.
	Knowledge of their role in maintaining wildlife diversity.	Students and families can support birds, including Neotropical migrants, herps and other wildlife dependent on their community.	Students need to know what lives around the, and learn to collect data and monitor on a regular basis, using WDFW species presence information when relevant.
	Natural selection i.e. in context of normal winter kill and game populations.	Less non-hunters become anti-hunters.	Kids are being taught in school how terrible hunting and firearms are. They need to educate about game, hunting and firearm safety.
	Our waters are being polluted	That students will be aware and	People are unaware that what they do

such that we are changing the balance of our environment.	will change behaviors that will ensure the preservation of existing species.	adversely impacts our environment.
Salmon as critical early indicators of ecosystem health.	Kids learn to link actions with consequences.	Informed decisions require educated decision makers.
Students need information about salmon and related issues at a level they can read..	Young students have relevant materials at their reading level which is appropriate for them about fish and habitat.	There's so much interest about fish in the news lets take advantage of the interest. Start young and maintain the interest.
The benefits of state/tribal co-management.	Get back on track...the same track.	Co-management, a critical element of salmon recovery, etc., is off track and has been for several years.
The detrimental effects of diking rivers and streams.	Fish and wildlife habitats are better protected and better growth management and land use decisions and regulations will prevail.	Diking drastically alters the alluvial processes and vegetation that create some of the most critical habitat for fish and wildlife. In the long run diking can create more problems than it solves, particularly when dikes inevitably fail during a flood.
The Endangered Species Act.	Students know that the laws passed are trying to save something that we are not taking care of.	Pesticides and fertilizers as well as used motor oil and pet waste are being dumped into our local waters.
The importance of wild fish.	All reasonable measures can be taken to ensure additional wild salmonids are saved from extinction.	Citizens need to stop viewing salmon as simply something to consume.
The interrelationships of critters in a healthy, functioning ecosystem.	They learn to appreciate species diversity and interdependence.	Education influences behavior.
The role of the environment, fish and wildlife in providing quality of life.	Young students will begin a lifetime of caring about the fish and wildlife in the places where they live, creating habitat in their backyards and community areas, and enjoying outdoor recreation including watching wildlife.	Young students of color are not active participants in outdoor recreation, and feel excluded from conservation efforts at schools, and in the community, where environmental action seems to be dominated by white
The value of volunteers who can contribute to their work as stewards.	Volunteers can contribute to WDFW research and conservation measures that meet the mandate.	WDFW employees need to have more faith and confidence in the value of employees through training on how to work with
Secondary school students		
Fish habitat needs.	Native fish stocks improve.	Building and managing land in flood plains and along surface waters is ignoring effects on fish habitat; students at the high school level need to be aware of this before they are ready to purchase land, a home, etc.
How to use fish and wildlife as a topic to connect students to where they live.	Students will work throughout the year to develop a full picture of fish and wildlife in their community so they can plan for fish and wildlife in their	Students through trained teachers can actively inventory their community and use this information to look at local government growth management plans, and problem solve for local governments.
Salmon's role and importance in the Pacific Northwest regional ecosystem.	Students see themselves as active participants in protecting their environments.	Personal commitments are needed to influence behavior.
The major problems affecting the struggling salmon populations.	The same mistakes are not made in the future.	Blame is irrelevant, problems exist and need to get fixed, even at the expense of those who have no blame.
What youth can do to determine a future for fish and wildlife.	Youth get involved with community policy planning, and	Through a service learning approach, youth can explore the policies of their communities

work on projects which directly
that protect fish & wildlife, learn how to create
impact the future of fish and
policy which would protect fish and wildlife.
wildlife.
Youth can plan an project which WDFW may
fund to contribute .

Next: How to Address the Issues.

CHAPTER IV: THE EDUCATION PROCESS

In developing an education plan, it is important to review recent research and trends in educational programming. What works? What is no longer effective? What never worked to begin with? How should the agency's educational programs be shaped?

Generally, environmental education asks four questions:

-What knowledge do you need?
-How can we build your appreciation?
-What can we do to help you make a better decision?
-What can we do to help you participate?

The following discussions reflect current, research- and experience-backed insights, nationally and locally.

How People Adopt an Issue and Change Behavior

A National, Research-Based Example

The following discussion is based on work by Hungerford and Volk, 1990, as discussed in Hooked on Fishing -Not on drugs as a Stewardship Education Program - A literature-based Program Review with Recommendations for Comprehensive Evaluation, Siemer, Knuth and Matthews 1998. This discussion is not about the Hooked on Fishing, Not on Drugs Program, but about the education method it was evaluated against.

Changing people's behaviors and ethics requires more than a mere dissemination of information. Three variables, **entry-level, ownership and empowerment**,;have been identified to operate in a linear, progressive, way. A progression exists from entry-level through empowerment, and responsible behavior will be more likely if all three levels of variables are included in an education program. This process takes place over time, and may require sequential, complementary efforts in a combination of formal and informal settings.

Entry-level variables include environmental sensitivity, knowledge of fish and wildlife, and a basic understanding of ecological principles.

Ownership variables personalize environmental issues, creating individual ownership of the problem or issue. They are critical to responsible environmental behavior. These include an in-depth knowledge of issues on fish and wildlife; a personal investment in fish and wildlife issues; knowledge of the positive and negative consequences of behavior; and a personal commitment to resolving a problem.

Empowerment variables give people a sense that they can make changes and help resolve important environmental issues. Major empowerment variables include knowledge of and skill in using environmental action strategies; and an in-depth knowledge about issues.

Potential strategies for Washington Department of Fish and Wildlife education programs (adapted from Knapp et al. 1997)

Entry-level

•Deliver to citizens sufficient information to become knowledgeable about fish and wildlife.

•Deliver to citizens experiences that promote an understanding or comprehension of information about fish and wildlife.

•Deliver to citizens sufficient knowledge to become aware of the resource management policies and goals for fish and wildlife.

•Deliver to citizens experiences that promote an empathetic perspective toward fish and wildlife.

Ownership

•Develop in citizens a cognitive awareness of how their collective actions may influence the quality of fish and wildlife and the environment in general.

•Deliver to citizens the knowledge necessary to investigate and evaluate fish and wildlife issues.

•Deliver to citizens sufficient knowledge to become aware of the resource management policies and goals for fish and wildlife.

Empowerment

•Develop skill necessary for citizens to take responsible actions in regard to fish and wildlife issues.

A Local, Experienced-Based Example

A project team at the Local Hazardous Waste Management Program in King County, Washington, spent several months in 1995 reading behavior change literature from energy conservation, recycling, health education and other fields, looking for insights.

They distilled many of the principles found in the literature into workshops for staff, hoping to make their efforts to change business' and the public's hazardous waste behavior more effective.

Key findings

A key insight from the project is that **information alone is not enough to change behavior.** As government workers, we often try to solve a problem by creating a brochure, believing that if we build a brochure, they will come. However, starting with a brochure starts at the wrong end of the process. If information alone changed behavior, there would be no more smokers, all kids would wear bike helmets, and all businesses would follow the regulations.

In reality, there are many barriers besides information to achieving a result. Good project planning identifies and tackles these barriers.

It's important to start any project by **clearly defining the final objective,** the desired end result. Spending time up front clarifying and narrowing the objective is not always easy, but it should pay off later in more effective outreach strategies.

Next, brainstorm who—what audience or group—is important to achieving the desired result. Then get to know that audience: What do they need and want? What do they know? Who do they respect and interact with? What change is needed from the audience to achieve the desired result? Most important, **what are their barriers to making the change?** Use what you've learned to refine your original objective.

It is only at this point, when you've identified key barriers to change and refined your objective, that you should develop strategies to reach the audience. The key principles of using commitment, role models, change agents, credibility, and presenting information effectively can be used in developing strategies. Last but not least, develop a method to find out how the strategy worked.

The following *Checklist of Action Steps for Behavior Change* and *Key Insights* chart a clear course for education planning.

Checklist of Action Steps for Behavior change

This is a circular process. Working through steps 2, 3 and 4 may lead to redefining the objective in step 1

1. **Define your objective**. What is your desired end result? You may begin by thinking broadly, but narrow your objective so it's achievable and, if possible, measurable. How will you know when you've achieved your desired result?

2. **Select your audience**. Brainstorm the possible audiences you could work with and choose one. Pick the one most likely to get your desired result.

3. **Learn about your audience**. What do they need? What do they want? What do they know? What are their perceptions? Who do they respect? Who do they interact with (business and social networks)? Define the specific change you want the audience to make to achieve your overall result.

4. **Find out about your audience's barriers to making the change**. Go ask your audience. Possible barriers include: External: it costs too much, technology isn't available, laws are conflicting, etc. Personal: they don't recognize the problem, don't know what to do, don't consider it a priority, etc.

5. **Develop strategies to reach your audience, using the behavior change principles** (e.g., commitment, feedback, credibility, role models). Are there community or political leaders, associations, retailers, innovators, or other specific target groups that could help you reach your desired end result?

6. **Develop a method to measure the effectiveness of your strategies**. Refer back to your objective in step 1.

Summary: Key Behavior Change Principles

The Bottom Line: Just providing information has a limited effect on behavior. There is no clear causal relationship between providing information and changing behavior.

Learn about your customer or audience. What do they know? Care about? Think about? Who influences them?

Address the barriers to changing behavior. Barriers may be external (it costs too much, technology isn't available, laws are conflicting) or personal (the person doesn't recognize the problem, doesn't know what to do, doesn't consider it a priority, thinks it's too hard, has no relative bearing in their life).

Key Insights

1. Getting involved is the first step to making a commitment, and making a commitment makes people more likely to act. Small commitments lead to big ones. Start by getting the shop owner involved in a visit. Then ask them to sign a form stating changes they will make.

2. Feedback and follow-up are important. Feedback gives people cues about the impacts of their behavior changes. Additional contact is also very important in motivating people to stick with a task.

3. People will listen first to their friends or relatives, or others they see as credible. What they hear at a dinner party will have more weight than a comprehensive data summary.

4. Change agents and role models are important. A few people in a group will typically adopt innovative ideas and behavior first, and spread them through the group. Find these people and help them successfully adopt a new behavior.

5. Changing attitudes may not change behavior. There is no strong, direct or consistent relationship between attitudes and subsequent action.

6. Incentives may help change short-term, but probably not long-term, behavior. People may respond to incentives by changing their behavior, but when the reward is removed, they generally revert to their original behavior.

7. If you need to provide information, present it effectively. People are more likely to pay attention to information that is:
-Vivid: Use language that conjures up a vivid and memorable image, or provide a demonstration that will stick in someone's mind.
-Personal: Make statistical data personally relevant. Talk about personal consequences or refer to a group with which the person identifies.
-Specific and concrete: Tell them how to do the behavior you want them to do.
-Stated in terms of loss rather than gain: Focus on showing people or businesses how much they are losing every month or year by not doing a specific behavior.
-Told as a story: Use success stories as a motivating example.
-Emotional: People tend to be persuaded more by emotional messages than logical ones.
-Accurate.

Example - Getting Involved: Students as Scientists

Another very effective educational approach is to involve the intended audience in helping to gather data that is valuable to the agency. Using students as the target audience, the Washington Governor's Council on Environmental Education strongly advocates that natural resource agencies work with teachers and students to conduct relevant field work and gather data. Students can provide scientific data about fish and wildlife, water, recreation, environmental health, insects, trees and plants, site restoration and other scientific questions.

Using students to conduct actual scientific work will strengthen collaborations among schools, communities and natural resource agencies, as well as providing valuable information to those agencies. The benefits of school-agency partnerships are:

Students will
-Understand and use scientific concepts and principles.
-Increase critical thinking.
-Conduct scientific investigations to expand understanding of the natural world.
-Apply science knowledge and skills to solve problems or meet challenges.
-Use effective communication skills and tools to build and demonstrate understanding of science.
-See how science knowledge and skills are connected to other subject areas and real-life situations.
-Work with scientists in real-life situations.
-Foster an interest in the natural resource issues and problems they will face as adults.
-Learn about career opportunities.

Agencies will
-Bring their knowledge and challenges of scientific policy-driven work directly to young citizens.
-Gain useful field data, not possible with current budgets.

Teachers will
-Interact with scientists to improve classroom teaching.
-Teach in the context of actual communities and situations.

Schools will
-Have access to resources such as scientific equipment not available through school budgets.
-Have access to other resources, including grants to support field and classroom work.

Next: Using Core Values and Codes of Ethics in Educational Planning.

CHAPTER V: GOALS FOR WDFW EDUCATION PROGRAMS

To begin the development of an education plan for the Washington Department of Fish and Wildlife, an internal committee was created. Member of this educational planning committee (identified near the title page) shared a deep commitment to education, and represented all agency programs and geographic regions. The following Core Values,Vision and Goals were drafted by this group.

What are our Core Values?

Since so many of the behaviors people exhibit are based on their personal ethics, changing behavior and ethics go hand in hand. Brainstorming sessions conducted by Rushworth M. Kidder of the Institute for Global Ethics identified a set of core ethical values that people share;, *responsibility, fairness, honesty, respect, tolerance and caring.* A seventh value, freedom, is also important outside the United States. Here, we take freedom for granted.

An education program should incorporate these core values, and should identify what is ethically sound for the people the program is trying to educate. The following are examples of ethical codes for the public to adopt in day-to-day living; and for the Department of Fish and Wildlife in education program development.

An Individual's Code of Ethics for Protecting Washington's Fish and Wildlife

Responsibility

I want to be a responsible steward of fish and wildlife. I will learn what needs to be done to help preserve our resources.

I will identify what changes I need to make in my personal actions to lighten my impact on the land and I will make those necessary life-style changes.

I will donate a portion of my time and other resources to help improve fish and wildlife habitat.

Fairness

If I impact the habitat as a recreationist, commercial harvester or developer, I will choose the least-damaging option for fish and wildlife.

I will consider the effects of my actions on fish and wildlife when I use the land.

I recognize that I am a steward of the resources of the state, which belong to all people of the state and to future generations.

I recognize that I have an obligation to other users and future generations who are not here to represent themselves.

Honesty

I am honest with myself regarding my environmental actions and inactions.

Respect

I believe that all native fish, wildlife and plant populations have an intrinsic value in our landscape.

Tolerance

I recognize that each issue has differing points of view. While I may not agree with someone, I will allow them their right to express their side.

Caring

Fish and wildlife are critical to my way of life.

I take the time to observe fish and wildlife and reflect on their condition.

WDFW's Code of Ethics in Education Program Development

In addition to helping to foster a code of ethics among Washington's citizens, department employees should adopt and use the following ethic in developing educational programs.

Responsibility

WDFW will identify the needs of fish and wildlife and make that information available to the public.

WDFW will identify issues and actions that impact fish and wildlife.

WDFW will recruit, train and direct volunteers to improve fish and wildlife habitats and populations and provide opportunities for people to help as individuals.

WDFW will advocate for the needs of fish and wildlife biodiversity and conservation.

WDFW will develop volunteer opportunities from the participant's point of view as well as from the department's point of view, to provide meaningful and enjoyable projects.

Fairness

Programs will be accessible to all.

Education efforts will include diverse audiences who currently impact wildlife or who may be encouraged to appreciate wildlife.

Honesty

Program materials will incorporate sound science; be accurate, timely and unbiased.

WDFW recognizes the limits of its ability to affect change.

Respect

Similar educational efforts by other agencies and organizations are appreciated and recognized.

WDFW will collaborate and cooperate with others.

Tolerance

Other points of view are respected.

Caring

The individuals who are helping to make a difference are appreciated, recognized and thanked.

We work as colleagues in a positive, encouraging atmosphere.

Our work together creates a common sense of community where we work with each others' strengths and help with weaknesses**.**

Program Components

Vision

Washington citizens will be informed about our complex fish and wildlife problems, will support the departments efforts to carry out its mission and will make the necessary changes in their behaviors to accommodate the needs of wildlife.

Goal

- Instill in the public the respect and commitment to protect the state's fish and wildlife resources through knowledge and personal responsibility.
- Provide the state's citizens with information and education services that will allow them to make decisions that will protect and benefit fish and wildlife and to behave responsibly in their activities.

Guiding Strategies

-Effectively deliver to the public the framework, knowledge, content and process skills to intelligently engage in resource issues.
-Advocate for fish and wildlife.
-Incorporate all the educational steps— entry-level, ownership & empowerment—into educational offerings.
-Learn about the attitudes and needs of all target audiences.
-Address all audiences.
-Make education every employee's responsibility; add to job performance evaluation.
-Provide experiential learning opportunities: Get them out.
-Adopt the concept of recreational volunteerism.
-Develop yearly themes to educate about and tools to assist and cross-train employees.
-Be innovative and open to new ideas.

Audience

When asked "Who is the intended audience for this proposed program?" the answer often is: The general public. But the general public has many discrete components. The term stakeholder is often used interchangeably with

audience.

For the purposes of this plan, audiences will be addressed as follows:

Elementary school students (kindergarten through eighth grade)
Secondary school students (ninth through 12th grade)
College
Citizen
Citizen -Novice
Citizen - Informed: External Stakeholders
-anglers and hunters
-landowners and developers
-wildlife and recreation organizations (conservation, hiking, mountain bike clubs, etc.)
-commercial fishing interests
-license dealers
-wildlife-related businesses
-educators/schools/students
-federal agencies
-federal legislators
-city and county officials
-tribal groups
-animal welfare groups
-animal rights groups
-media (TV, radio, newspaper)
-other state agencies (forestry, agriculture, tourism)
-state legislators
-state legislative staffs
-governor's office
-other industries (agriculture, biomedical, electric utilities, etc.)
-business community
-youth groups (scouts, 4H)
-other civic groups (garden clubs, Rotary, League of Women Voters, Jaycees, religious groups)
-churches
Citizen - New, Emerging, Non-Traditional
-Asian/Pacific Islanders
-urban ethnic groups
Internal Stakeholders
-agency managers
-commissioners
-law enforcement
-professional staff
-office/clerical staff
-retired employees
-temporary/seasonal employees
-public information and education staff
-new hires

How Have We Addressed Audiences To Date?

Educational offerings are provided by all department programs, to some degree or another. A short description of each existing educational component (as of July 1, 1998) is presented in Appendix III. The included table, based on the Knapp model, summarizes these components and identifies the level of behavior change and audience for which each is PRIMARILY intended. It is understood that many educational components do cross behavior levels and reach multiple audiences. (Please see Appendix III for a more complete description of the listed components.)

This analysis of current educational offerings reveals that most of the traditional education efforts of the Information and Education staff are intended for entry-level experiences, generally for large numbers of people. A few are designed to progress to ownership and empowerment levels. However, most of the ownership- and empowerment-level activities are conducted by staff from the resource (non-I&E) programs, and generally affect smaller numbers of people.

Next: Applying this to WDFW Educational Offerings.

CHAPTER VI: EDUCATION THREE-LEVEL PROCESS

This plan builds on the three-step education process defined by Hungerford, Volk and Knapp, described in Chapter IV. These researchers described the education process as linear, beginning with entry level activities followed by ownership activities which lead to empowerment activities.

This education plan renames these steps to: **understanding systems; environmental inquiry; and taking action.** The Education Planning Team felt that these more accurately describe the process for fish and wildlife education.

From the needs assessment in Chapter III, the systems that need to be understood include:

- Watersheds
- Riparian areas
- Estuaries and marine habitats
- Wildlife and habitats
- Fish and habitats
- Amphibians and reptiles
- Birds
- Endangered Species
- Priority habitats and species
- Role of wildlife management in maintaining or sustaining species.
- Biodiversity
- Wise use of resources and recreation
- Consequences of personal actions

The following tables are the heart of the WDFW's ongoing and future education programs. In the column "Underway" the codes reflect the current funding source: Aquatic Lands Enhancement Account (ALEA); Sport Fish Restoration (WB); Wildlife Fund - State (WLS); Personalized License Plates (PLP); General Fund - State (GF), Local, and Shewmaker Trust Fund (STF).

Tasks in the Needed column are potential tasks to be funded using the proposed Conservation and Reinvestment Act of 1999 grants.

Priorities will be determined for each fiscal year, depending upon available funding and current topical needs. This full listing is to establish the overall framework for fish and wildlife education for the entire Washington Department of Fish and Wildlife.

No activities are included for the Hunter Education Program, as it has its own six-year plan, valid through 2005.

Comparison of Three-Level Naming Conventions:

Hungerford, Volk and Knapp	**WDFW**
Entry Level	Systems Understanding
Ownership	Environmental Inquiry
Empowerment	Taking Action

Systems understanding: **Understanding the environmental dynamic** -Basic information and awareness -Introductory knowledge **Additional program emphasis:** -Upland wildlife and habitat -Watersheds	***Experiences to educate:***	***Task:***	***Under-way***	***Needed***
	-Systems knowledge about components provided by hard copy or Website reports, pamphlets, posters and fact sheets. This knowledge is necessary prerequisite to developing an inquiry about watershed/wildlife and habitat in the area.	-Fact sheet development - Living with...species series For urban, rural, endangered and nuisance species. -Create specific Washington summer and winter bird posters and amphibian posters. -Develop Website to include reports, life histories and illustrations of WA's wildlife	WLS	X X X
	-Provide a WDFW watershed/wildlife/habitat merit badge/incentive system for children to explore Washington's wildlife heritage.	-Create a WDFW watershed/wildlife/habitat activity book for children. K-9. High-schoolers can use activity guide to mentor younger grades.		X
	-Provide workshops on wildlife and habitat for K-12 teachers& educators of youth groups.	-Train teachers through WDFW Project WILD education workshops providing activity guides to teach about wildlife.	WLS WB	X
	-Train high schools to mentor younger grades by becoming Junior Naturalists passing on the systems knowledge to lower grades.	-Develop a Project WILD Junior Naturalist Program for schools and youth groups: e.g. outdoor clubs, ecology clubs, YMCA, Boys and Girls Clubs 4H.		X
	-Create a Junior Naturalist program at environmental learning centers. training and supporting staff to lead youth on weekend explorations of the outdoors observing wildlife and habitat.	-Develop a WDFW Project WILD Junior Naturalist Program working with Watchable Wildlife and outdoor learning centers.		X
	-Create a stewardship training program for adults, a component of which develops knowledge of watersheds/ wildlife and habitat in terms of systems, through active learning experiences. Adults can then provide stewardship support to junior naturalist programs.	-Master Watershed Stewards: initiated by WDFW Project WILD, now a partnership of resource agencies must find support funding to continue, following successful pilot.		X
	-Work with other stewardship training programs to include a wildlife and habitat component in their training (e.g. Master Gardeners)	-Project WILD education programs works with WSU Cooperative extension etc., to include WDFW messages and science/restoration techniques.	WB WLS	
	-Create a magazine or newsletter that regularly informs the public about wildlife in Washington state through articles.	-Project WILD, Watchable Wildlife, Urban Wildlife and Salmon in the Classroom coordinate to create combined newsletter for their audiences.		X
	-Focus on multicultural communities who impact wildlife/habitat to develop a conservation ethic.	-Project WILD conducts multicultural outreach to cultural groups of urban and rural communities.	WB	
	-Create wildlife appreciation programs, where people view wildlife and have access to an interpretive sign to build their knowledge base.	-Project WILD and Watchable Wildlife develop interpretive experiences for viewing public.		X
	-Provide interpretive signs along hiking trails to describe what hikers may encounter and what to avoid (cougars and bears).	-Project WILD, Wildlife Management and Enforcement work to create information materials and dissemination strategies (meetings, workshops)		X

Environmental Inquiry -Becoming familiar with area: defining wildlife and habitats of community -Noting areas of concern to investigate further. -Choosing aspect of wildlife or habitat to investigate, to define a problem. -Collect data of concern -Use data to define the problem -Problem solve, finding alternative solutions -Consider consequences of alternative solutions -Choose solution to implement	***Experiences to educate:***	***Task:***	***Under-way***	***Needed***
	-Have youth and the public collect data on wildlife and habitat that has value for agency biologists.	-NatureMapping, a joint WDFW Project WILD and UW Gap Program, trains youth and the public to collect data on wildlife useful to the agency and their own community inquiry.	WB	
	-Provide feedback to environmental inquiry involving wildlife data collection and monitoring by providing agency products (PHS data excluding endangered info) which inform the participant what WDFW knows about their area of concern, compared to what they have found.	-NatureMapping, through workshops, provides satellite imagery to participants, and feedback with maps of their data along with expert data on the species they identify, and expect to see.	WB WLS	
	-Train youth and adults to identify wildlife and habitats	-NatureMapping workshops provide training to identify wildlife and habitats.	WB WLS	X
	-Provide youth and adults studying their environment for wildlife and habitat with documents which describe recovery plans and policy.	-Create Website access to documents which describe policy and recovery.		X
	-Support wildlife/habitat studies by providing student/adult steward access to WDFW scientists.	-Develop a controlled Website means for scientists to respond to student & public inquiries as they study their wildlife area through NatureMapping.		X
	-Assist youth and adults in exploring the ramifications of policy at local, state and federal level for their community, and provide training on how they can develop policy.	-Project WILD/NatureMapping & Master Watershed Stewards develops projects/activities to build policy analysis skills. Use Model Links schools as examples.	WLS WB	X
	-Develop a wildlife/habitat studies program to support community based problem solving - partner with university field studies entities who can complement this work to help communities.	-Master Watershed Stewards train adult volunteers in wildlife/habitat studies through partnership with WDFW/Governors Council on EE and WSU Coop. Ext.	WLS	X
	-Focus on multicultural communities to ask questions about the sustainability of their practices, and engage the community in data collection to answer those questions.	-Use interns to develop a community discourse and train on NatureMapping data collection.		X

Taking Action -Based on environmental inquiry develop a plan to take action -Implement plan -Reflect and Evaluate success of implementation -Refine plan for further implementation	***Experiences to educate:***	***Task:***	***Under-way***	***Needed***
	-Train youth to create or restore habitats for wildlife for service learning projects by training teachers through workshops.	-Restore Project WILD grant program to fund teacher & student monitoring of outdoor Wildlife Learning Sites at schools. Provide training to teachers .		X
	-Focus on non-formal education groups (scouts, YMCA, Boys and Girls Clubs, church youth groups) to develop skills to create habitat for wildlife by providing training and materials support to the educators.	-Provide Project WILD training workshops on non-formal educators and their needs.		X
	-Senior Naturalist program: A graduated Junior Naturalist becomes a Senior naturalist, by training youth or carrying out a service learning project	-Create Senior Naturalist opportunities at learning centers, wildlife areas, Watchable Wildlife sites for graduating Junior Naturalists.		X
	-Facilitate high schools to undertake a senior project where students actually carry out an action project following environmental inquiry.	-Project WILD through an interagency Model Links Project develops Senior Project opportunities with grants and assistance from WDFW scientists - to create or improve habitat for wildlife or develop and advance policy.		X
	-Train adult wildlife stewards to take action that improves habitat for wildlife, affects local policy or influences peoples consuming practices adverse to wildlife or habitat, or influences peoples behavior to support wildlife.	-Provide Master Watershed Steward training through WSU Cooperative Extension using WDFW experts and information.		X
	-Train land owners in land stewardship; fencing away from streams, planning riparian zones, leaving cover in hedgerows.	-Provide Master Watershed Stewards workshops & other WSU Cooperative Extension training for land owners (include incentives to use the training)	WB	X
	-Partner with other natural resource agencies to complement work and strengthen outreach to youth and adults	-Project WILD works with the Governors Council for EE, representing resource agencies of WA.	WB	X
	-Focus on urban dwellers and what they can do to keep desirable wildlife in their community.	-Urban Wildlife Program and Enforcement & Project WILD disseminate informational materials.	WLS	
	-Career development training: Provide a employee-youth mentoring program where employees undertaking field work will take out school age youth on the job to inspire youth to take up natural resource studies, or become lifelong stewards.	-Project WILD develops a mentoring program for youth who experience what WDFW scientists do.		X
	-Provide expertise to training institutions to include ecological principles in design and consultation work.	-WDFW Education programs work with Governor's Council on Environmental Education to influence universities and colleges.		X
	-Market the concept of heroic wildlife/habitat steward who takes action on behalf of wildlife.	-Create TV & radio campaign to feature land owners and regular citizens as heros for wildlife by taking action to improve the future of wildlife.		X
	-Provide workshop on how to affect the planning process and public hearing process			X

Systems understanding: **Understanding the environmental dynamic** -Basic information and awareness -Introductory knowledge **Additional program emphasis:** --Fresh and salt water fish information -Sport fishing recreation and safety.	***Experiences to educate:*** -Provide basic information on the fish species of Washington. -Describe fishing recreational opportunities and locations. -Maintain state record fish program. -Encourage volunteers to teach the basics of fishing to youth and adults.	***Task:*** -Develop relevant and topical fact sheets on fish -Purchase, store and distribute instructional materials for instructors. -Recruit, train and retain volunteers to teach angling skills and ethics. -Produce new fish poster. -Purchase, stock and distribute litter bags with fish-friendly messages.	***Under-way*** WB WB WB WB WB	***Needed***
Environmental Inquiry -Becoming familiar with fish and fish habitat. -Noting areas of concern to investigate further. -Choosing aspect of fish or habitat to investigate, to define a problem. -Collect data of concern. -Use data to define the problem -Problem solve, finding alternative solutions -Consider consequences of alternative solutions -Choose solution to implement	***Experiences to educate:*** -Conduct student and volunteer assessments of stream health(monitoring.) -Encourage youth participation in sport fishing.	***Task:*** -Incorporate NatureMapping for Fish and Streams into volunteer training. -Salmon trunks -Create slide show on fish and fishing opportunities. -Provide fishing equipment and eXpertise/training to local community centers serving under-served youth.	***Under-way*** WB	***Needed*** X X X
Taking Action -Based on environmental inquiry develop a plan to take action -Implement plan -Reflect and Evaluate success of implementation -Refine plan for further implementation	***Experiences to educate:*** -Encourage active, ethical fishing. -Encourage volunteers to conduct stream restoration activities.	***Task:*** -Promote Free Fishing Day. -Classroom presentations by volunteers. -Fishing clinics conducted by volunteers. -Conduct and or coordinate stream restoration clinics for volunteers.	***Under-way*** WB	***Needed*** X

Systems understanding: **Understanding the environmental dynamic** -Basic information and awareness -Introductory knowledge **Additional program emphasis:** -Salmon life history and needs -Watershed awareness -Marine resources -Personal choices	***Experiences to educate:*** -Conduct classroom aquarium project where students raise salmon from eggs to alevin in the classroom, as the central focus of a comprehensive salmon theme -Systems knowledge about components provided by program text, activities, fact sheets and pamphlets	***Task:*** -Pacific salmon life cycle poster -Egg development display -The Fish Hatchery Next door -Classroom presentations -Provide new posters as education tools: macro-invertebrates, the water column -Provide quarterly teacher training workshops -Continue to publish a quarterly newsletter to update and inform participants -Additional teacher seminars -Salmon Dilemmas -Additional classroom speakers -List serve -Water issues primer -Work with other natural resource education programs to offer an inclusive, coordinated product	***Under-way*** WB WB WB WB WB/ local WB Local WB	***Needed*** X X X X X X X
Environmental Inquiry -Becoming familiar with area: defining salmon and habitats of community -Noting areas of concern to investigate further. -Choosing aspect of salmon or habitat to investigate, to define a problem. -Collect data of concern. -Use data to define the problem -Problem solve, finding alternative solutions -Consider consequences of alternative solutions -Choose solution to implement	***Experiences to educate:*** -Pilot nature mapping for fish/streams w/ selected schools -Pilot use of a hatchery facility and WDFW technical staff for scheduled environmental learning /salmon habitat seminars -Link school projects w/ local volunteer mentor	***Task:*** -Salmon Trunks -Salmon activities packages -FHND learning activities -Salmon Seminar lesson plans -Classroom aquarium w/eggs -Water chemistry/quality testing lessons -Develop a dissection lesson/activity plan -Develop a genetics lesson/activity plan -Develop a growth & the environment model lesson/activity plan -Hatchery visit -Incorporate NatureMapping for Fish and Streams into curriculum -Macroinvertebrate poster -Testing kits for schools -Add genetics info -Pollution component -E. Washington issues -Consequences of growth -Hands-on experiences -Web mentor for new participants	**Under-way** WB WB WB WB WB WB 	***Needed*** X X X X X X X X X X X X X

Taking Action -Based on environmental inquiry develop a plan to take action -Implement plan -Reflect and evaluate success of implementation -Refine plan for further implementation	***Experiences to educate:***	***Task:***	***Under-way***	***Needed***
	-Link school projects with local habitat restoration projects.	-Recycling	WB	
		-Stream bank revegetation projects	WB	
		-Streamside nature trail construction	WB	
		-Volunteer stream monitoring	WB	
		-Student letters to officials		
	-Sponsor/coordinate a Kid's Salmon Conference where students make presentations to peers regarding local projects	-Kids' Salmon Conference	WB	
		-Mentoring younger students		X
		-Kids' Watershed Steward Program	WB	
		-Salmon art show		X
	-Create/coordinate an updated water resources inventory.	-Inventory of water resources		X
	-Create a docent program for hatcheries utilizing high school students to lead elementary school groups	-Hatchery docent program Kids teaching kids		X
	-Evaluate experiences, lesson/activity plans, program results			X
	-Kids learn to identify the pathways of water pollution/contamination by marking storm drains with Dump No Waste- Fish signs	-Storm drain stenciling		X

Systems understanding: **Understanding the environmental dynamic** -Basic information and awareness -Introductory knowledge Additional program emphasis -Inter-tidal information -Shellfish harvesting recreation	***Experiences to educate:*** -Explorations of inter-tidal zone to familiarize public with animals and habitats generally unseen -Basic information to share conservation, stewardship and partnership messages as well as species ID, management guidelines as they apply to agency mandate to preserve, protect and perpetuate the resources -Health messages both natural and man-made. Rules and regulations and why we have them.	***Task:*** -Beach walks for classes and families in a host of settings -Lecture series in classroom, parks, campgrounds, at fairs, civic organizations -Design displays, flyers, brochures and activity booklets; write articles for magazines.	***Under-way*** ALEA ALEA ALEA	***Needed*** X
Environmental Inquiry -Becoming familiar with area: defining wildlife and habitats of community -Noting areas of concern to investigate further. -Choosing aspect of wildlife or habitat to investigate, to define a problem. -Collect data on concern. -Use data to define the problem -Problem solve, finding alternative solutions -Consider consequences of alternative solutions -Choose solution to implement	***Experiences to educate:*** -Create an atmosphere in a host of settings such as schools, clubs, campgrounds, parks, on beaches or at fairs that results in active discussion about conservation ethic: why must we plan for tomorrow, whose role is it, why do problems exist, how do we solve them together; what are our alternatives/options? -Establish a sense of place or connection for all publics -Create a sense of exploration and wonder. excite to action.	***Task:*** -Beach walks for classes and families in a host of settings. -Lecture series in classroom, parks, campgrounds, at fairs, civic organizations, etc. to meet each of the different user groups.	***Under-way*** ALEA ALEA	***Needed*** X
Taking Action -Based on environmental inquiry develop a plan to take action -Implement plan -Reflect and Evaluate success of implementation -Refine plan for further implementation	***Experiences to educate:*** -Work with volunteers groups to Train the Trainers.	***Task:*** -Saltwater State Park has a tideland stewardship training program (TSTP) for teachers in the area -Seattle Aquarium Beach Rangers program -Share critical messages with volunteer network and empower them to get the word out -Meet with volunteer groups already working on other aquatic issues to broaden their skills to the less visible species (Carkeek Park, Seattle) -Work with other WDFW education program groups to broaden cadre of citizen volunteers.	***Under-way*** ALEA ALEA ALEA ALEA ALEA	***Needed***

Systems understanding: **Understanding the environmental dynamic** -Basic information and awareness -Introductory knowledge of wildlife and inter-tidal resources. -Public health and regulations. **Additional program emphasis** -outreach to under-served ethnic populations.	***Experiences to educate:*** -Introduce resource issues (health and regulations) to non-traditional and under-served audiences. Issues being addressed: -Marine resource sustainable harvesting -Salmon issues -Wildlife in urban areas -How to read regulations pamphlets, role of agency, forming partnerships and promoting stewardship to protect, preserve and perpetuate the resources, how to receive information via fax, e-mail, radio, cultural centers or newspaper, species ID, health issues both natural and man-made, how to better network together to conserve.	***Task:*** -Project WILD Multicultural outreach creates culturally sensitive education & information approaches for multiple audiences. -Project WILD multicultural outreach connects cultural audience with WDFW programs impacted. (Eg enforcement) -Project WILD works across programs to create informational & How to videos appropriate to the issue -Work with Health department who hires Asian Pacific IslanderI youth to shadow biotoxin field samplers and if possible offer summer jobs. -Meet business owners within API communities to share messages and create ongoing partnerships and networks to share critical messages/information.	***Under-way*** WDFW STF WDFW STF ALEA	***Needed*** X X X
Environmental Inquiry -Becoming familiar with area: defining wildlife and habitats of community -Noting areas of concern to investigate further. -Choosing aspect of wildlife or habitat to investigate, to define a problem. -Collect data of concern -Use data to define the problem -Problem solve, finding alternative solutions -Consider consequences of alternative solutions -Choose solution to implement	***Experiences to educate:*** -Multicultural communities invited to learn more about the resource they impact by data collection and monitoring -Multicultural communities develop means to mentor sections of their communities: youth to adult/ adult to youth/ youth to youth etc -Adult mentoring: Cultural community leaders accompany marine resource enforcement officers patrolling beaches	***Task:*** -NatureMapping for multicultural communities -Multicultural WILD trains youth interns from interested cultures to demonstrate responsible harvesting techniques to elders and other youth -Multicultural WILD and enforcement creates mentoring while patrolling opportunities -Field trips for elders and youth to see and experience first hand the resource and associated habitat -Agency reps visit meal sites and community centers bringing specimens to pass around and critical messages -Discussion on how to avoid health risks and citations for over limits, harvesting closed areas or private property -Have API members meet park and WDFW rangers/officers	***Under-way*** WDFW STF ALEA ALEA	***Needed*** X X X X

Taking Action -Based on environmental inquiry develop a plan to take action -Implement plan -Reflect and Evaluate success of implementation -Refine plan for further implementation	***Experiences to educate:*** -Multicultural community leaders and educators are trained to teach resource impactors how to follow regulations and why	***Task:*** -Multicultural WILD with DOH and PSWQAT share in funding a training program for marine resource stewards who volunteer to train others of their cultural community -Speaking with groups after they have gone harvesting for marine resources (were they successful and why), asking if they have shared information with family and friends, ask if they can better understand rules and regulations and health issues, do they understand dynamics of compliance for various regulations; do they now understand role of the agency, conservation concept and how to form lasting partnerships for their children's future?	***Under-way*** WDFW STF ALEA	***Needed*** X

Public Affairs

Systems understanding: **Understanding the environmental dynamic** -Basic information and awareness -Introductory knowledge **Additional program emphasis** -Fish and wildlife management -Revenue needs of management agency -Public involvement. -Current issues.	***Experiences to educate:*** -The needs of fish and wildlife management agencies.	***Task:*** (To be determined by the Public Affairs Office.)	***Under-way***	***Needed***
Environmental Inquiry -Becoming familiar with area: defining fish, wildlife and habitats of community -Noting areas of concern to investigate further. -Choosing aspect of wildlife or habitat to investigate, to define a problem. -Collect data of concern -Use data to define the problem -Problem solve, finding alternative solutions -Consider consequences of alternative solutions -Choose solution to implement	***Experiences to educate:*** (To be determined by the Public Affairs Office.)	***Task:***	***Under-way***	***Needed***
Taking Action -Based on environmental inquiry develop a plan to take action -Implement plan -Reflect and evaluate success of implementation -Refine plan for further implementation	***Experiences to educate:*** (To be determined by the Public Affairs Office.)	***Task:***	***Under-way***	***Needed***

Systems understanding: **Understanding the environmental dynamic** -Basic information and awareness -Introductory knowledge **Additional program emphasis** -Urban impacts on fish and wildlife -Personal choices -Urban wildlife viewing -Economic benefits of urban wildlife	***Experiences to educate:*** -Develop an appreciation of fish and wildlife needs in an urban setting -Explain the impacts of urban sprawl on native fish and wildlife populations –Explain how urbanites can live harmoniously with wildlife -Explain how wildlife and habitat can economically benefit neighborhoods	**Task:** -Locate and publicize wildlife viewing opportunities -Develop self-help nuisance wildlife materials -Advertisements on busses -Pamphlet for planners & developers on the value of amenities	***Under-way*** PLP PLP PLP	***Needed*** X X
Environmental Inquiry -Becoming familiar with area: defining wildlife and habitats of community -Noting areas of concern to investigate further. -Choosing aspect of wildlife or habitat to investigate, to define a problem. -Collect data of concern -Use data to define the problem -Problem solve, finding alternative solutions -Consider consequences of alternative solutions -Choose solution to implement	***Experiences to educate:*** -Engage public in monitoring wildlife populations -Assist in ways to improve urban habitat -Assist the public in the land-use planning and public hearing process -Develop recreational and educational programs to engage publics in appreciative wildlife recreation	*Task:* -Backyard bird surveys. -Backyard wildlife program -Crossing Paths publication -Develop materials on urban habitat improvements -Provide workshop on how to affect the planning process and public hearing process -Identify urban watchable wildlife areas -Recruit urban bird monitors	***Under-way*** PLP PLP Local	***Needed*** X X X
Taking Action -Based on environmental inquiry develop a plan to take action -Implement plan -Reflect and evaluate success of implementation -Refine plan for further implementation	***Experiences to educate:*** -Stimulate use of wildlife-friendly plants in landscaping -Encourage people to participate in the land-use planning and public hearing process	*Task:* -Back yard sanctuary program --Provide workshop on how to affect the planning process and public hearing process	***Under-way*** PLP	***Needed*** X

	Experiences to educate:	Task:	Under-way	Needed
Systems understanding: **Understanding the environmental dynamic** -Basic information and awareness -Introductory knowledge **Additional program emphasis:** -Introductory information on wildlife needs -Stimulate recreation and tourism toward wildlife -Targeted toward aging baby-boomers -Introduce to skills & ethics & opportunities (where, when, seasonal occurrences, habitats)	-Engage and assist public in wildlife viewing	-Develop support publications, slide programs, interpretive signs, videos, new viewing guide and workshops		X
		-Monthly calendar of viewing opportunities	GF	
		-Identify cooperative areas with wildlife viewing potential.	GF	
		-Inventory WDFW lands for viewing potential		X
		-Develop family-oriented wildlife viewing skills workshop		X
		-Develop wildlife viewing plan representative of Washington's diverse habitats and species		X
		-Conduct focus groups to target public desires for viewing		X
	-Encourage basic trips for families, individuals, group trips and tours	-Work with Audubon, educational institutes & guides to provide introductory trips		X
	-Engage public in wildlife-related festivals	-Develop web site of opportunities.	GF	
		-Staff exhibits at 6 wildlife festivals	GF	
	-Raise local community awareness of local wildlife viewing opportunities and their economic value	-Plan Othello-Coulee Dam Scenic Highway Corridor	Local	
Environmental Inquiry -Becoming familiar with area: defining wildlife and habitats of community. -Making the connections to species, relationships, habitats, etc. (migratory birds, raptors, predator/prey, shrub steppe) -Noting areas of concern to investigate further. -Choosing aspect of wildlife or habitat to investigate, to define a problem -Collect data of concern -Use data to define the problem -Problem solve, finding alternative solutions -Consider consequences of alternative solutions -Choose solution to implement	***Experiences to educate:*** -Interpret local wildlife messages	***Task:*** PSEOW	***Under-way*** Local	***Needed***
	-Develop infrastructure needs for access, interpretations, site & resource protections	-Assist Skagit Wildlife Area & Swan Reserve; Oak Creek WA; other Wildlife Areas	GF	
		-Assist nature centers and volunteers in gathering presence/absence data on wildlife		X
	-Encourage local jurisdictions to value the fish & wildlife that can be found locally	-Participate in Heritage Advisory Committee (WSDOT)	X	
		-Provide leadership role to Cultural Tourism Task Force	X	
	-Create/promote in-depth trips and opportunities, use regional & taxonomic approach.	-Develop outfitters & guides workshop with Tourism		X
		-WW of rain forest, oak-grassland, raptors of the west		X
		-Complete & expand Discovery Wildlife Series		X

Taking Action -Based on environmental inquiry develop a plan to take action -Use acquired skills, knowledge in everyday life in support of fish & wildlife conservation -Implement plan -Reflect and evaluate success of implementation -Refine plan for further implementation	***Experiences to educate:***	***Task:***	***Under-way***	***Needed***
	-Develop community-based festivals celebrating local wildlife attractions	-Provide support & assistance to Othello, Marblemount, Concrete, Grays Harbor festivals with a conservation emphasis	GF	
		-Link Watchable Wildlife supporters and participants with NatureMapping and regions to do projects with skills		X
		-Develop Friends of Watchable Wildlife Sites program to assist in projects & maintenance		X
		-Develop a Limits of Acceptable Change matrix for monitoring at wildlife viewing sites		X
	-Establish community groups to identify and protect wildlife resources	-Work closely with WSDOT/Tourism & other cultural tourism members to incorporate appropriate wildlife recreation into projects	GF	
		-Implement Othello-Coulee Dam plan	Local	
		-Work with other local & state agencies to incorporate WW training into Cultural Resource Training Course		X
		-Assist local groups in grant applications for fish & wildlife projects		X
		-Develop a "Certified Watchable Wildlife Guide" program to utilize private tour operators as messengers of fish and wildlife information and best practices.		X
	-Lead public to extended trips exploring and connecting to the entire cultural tourism of an area.	-Develop WW Tour Series		X
	-Enhance public awareness of ways to assist & contribute to fish & wildlife conservation & management.	-Develop promotions for Personalized License Plates, Duck Stamps, Access Stewardship decal.		X

As mentioned at the beginning of this chapter, annual priorities will be developed, based on available funding. Preceding the prioritization process, an annual evaluation of ongoing educational efforts will be evaluated for their effectiveness.

This three-step process is being included in ongoing planning activities in other programs, such as the Diversity Program's Strategic Plan, under development in June 1999.

If additional funding materializes, this structure provides a ready-made template for investing future funds for effective educational programming. At that time, additional meetings will be held with constituents to help determine priorities.

APPENDIX I: APPLICABLE RCWS

Title 75 Department of Fisheries

RCW 75.08.012 Mandate of the department.
The original mandate to the previous Department of Fisheries was to preserve, protect, perpetuate and manage the food fish and shellfish in state waters and offshore waters. Additionally, the department was charged: shall promote orderly fisheries and shall enhance and improve recreational and commercial fishing in this state.

RCW 75.08.047 Fish hatcheries—Volunteer group projects.
In response to growing community interest in retaining and assisting local fish hatcheries, a specific law was adopted in 1995 to allow volunteer groups to undertake projects to raise donations, gifts, and grants that enhance support for the hatchery activities in the surrounding watershed that benefit the hatchery. Activities may be conducted on department grounds, and the director shall encourage and facilitate arrangements between hatchery managers and volunteer groups.

RCW 75.50 Salmon Enhancement: Regional Fisheries Enhancement Groups
In response to a legislative finding in 1985 that many salmon stocks were critically reduced from their sustainable levels, immediate action was required to restore and enhance the fishery. Among the many actions required by the Legislature was the establishment of 12 non-profit Regional Fisheries Enhancement Groups (RFEGs) in 1991 representing all areas of the state with salmonids. Citizen volunteers were appointed to the RFEGs to complete projects to enhance salmon. A dedicated account was established from a surcharge on commercial and recreational fishing licenses and the sale of surplus salmon carcasses and eggs. A citizen advisory board was created to oversee the projects, train volunteer groups and report to the Legislature if improvements are needed in the program.

RCW 75.52 Volunteer Fish and Wildlife Cooperative Projects
In 1984, the Legislature found that fish and wildlife benefitted from contributions by volunteers from recreational and commercial fishing organizations, schools, and other volunteer groups. The law provides for cooperative agreements between the Department and volunteers to increase the fish, shellfish and wildlife resources through habitat enhancement, rearing projects, research, interpretive and educational projects. Funding is provided from the Aquatic Lands Enhancement Account.

RCW 75.54.005 Recreational Salmon and Marine Fish Enhancement Program.
In 1993, the legislature determined that recreational fishing opportunities for salmon and marine bottomfish have been dwindling, and that it is important to enhance the resource to assure sustained productivity. Investments made in recreational fishing programs will repay the people of the state may times over in increased economic activity and in an improved quality of life.

RCW 75.54.080 Public awareness program.
The department's information and education section is charged to develop a public awareness program designed to educate the public on the elements of the recreational fishing program and to recruit volunteers to assist in recreational fishing projects. Economic benefits of the program shall be emphasized.

Title 77 Department of Wildlife

RCW 77.12.010 Policy of protection of wildlife. The department shall preserve, protect and perpetuate wildlife. Regulations shall be established that maximizes recreational opportunities without impairing the supply of wildlife. The commission shall attempt to maximize the public recreational fishing opportunities of all citizens, particularly juvenile, handicapped and senior citizens.

RCW 77.32.155 Hunter Education Training Program
Since 1957, Washington has had a hunter education program to instruct hunters in safe firearms handling, conservation, and sportsmanship. Beginning in January 1995, all persons purchasing a hunting license for the first time, if born after 1972, have been required to complete at least 10 hours of hunter education.

APPENDIX II: WHAT EDUCATIONAL NEEDS HAVE BEEN PREVIOUSLY IDENTIFIED?

Over the previous decade, a number of documents have been developed that identified issues that people need to be educated about, with desired outcomes and suggested strategies to achieve the outcomes. This next section consolidates the desired outcomes and suggested strategies that have been developed to date.

Desired Outcomes

Washington Fish and Wildlife Commission

From the Washington Fish and Wildlife Commission Goals, Policies and Objectives

Objectives

-Identify key citizen groups and provide them with information on safe and ethical behaviors that will sustain fish and wildlife resources and recreational and commercial opportunity for the enjoyment of all.
-Provide information and education programs that enable citizens to assist in the stewardship of fish and wildlife resources.
-Structure information and education programs to complement and advance the goals and objectives of the resource management programs of the Department.
-Support schools and non-profit organizations in developing and implementing education opportunities.
-Develop and periodically conduct surveys to monitor the public's understanding of fish and wildlife needs, management and social importance.
-Develop a central fish and wildlife information service.
-Create an information system for rapid distribution of fish and wildlife information and regulations.
-Establish relationships with Indian Tribes that encourage the sharing of information about fish and wildlife management.
-Identify constituency groups supporting fish and wildlife and provide them with the information they need to support the resource.
-Identify strategies to reach non-traditional audiences and help them to participate in the process of supporting fish and wildlife resources.
-Work with the public to develop a code of ethics for outdoor recreation, hunting, fishing, viewing of wildlife, and the use of public and private lands.
-Enhance and maintain a hunter education program that contributes positively to safe hunting, an improved understanding of wildlife, hunting behavior and a positive image of hunters afield.
-Enhance and maintain an aquatic education program that informs the public about the aquatic environment, fish management and ethics and recruits new anglers.
-Create 30-second public service announcements that promote fish and wildlife.
-Develop and implement policies and procedures for public involvement.
-Create and use the input of citizen advisory committees on important issues.

WDFW Education Plans

From the first plan of the newly-merged Washington departments of Fisheries and Wildlife, 1993.

Strategies

-Citizen involvement in developing comprehensive watershed (ecosystem) based strategies for addressing the needs of fish and wildlife.
-Citizen involvement in developing a historic and contemporary data base regarding fish and wildlife in their community.
-Development of a statewide recreation plan.
-Development of a fish and wildlife library (physical and electronic.)

From WDFW Aquatic Education Program 5-Year Plan 1992-1997

Techniques

-Corps of trained, dedicated volunteer instructors.
-Publications and fact sheets.
Department produced videos.

Watchable Wildlife

From the Watchable Wildlife Program

-Provide the audience with a better understanding of wildlife needs and ecological relationships
-Interpret the effects of human activities on wildlife and their habitats
-Develop perspective which will lead to increased appreciation for wildlife and conservation.

From Teaming With Wildlife Discussion, August 25, 1998

-Provide outdoor classrooms for public schools.
-Provide outdoor education opportunities for urban youths.
-Support nature centers and environmental learning centers.
-Provide teacher workshops on wildlife diversity.
-Develop citizen-scientist programs to monitor wildlife diversity.
-Develop Master Naturalist volunteer programs.
-Enhance Project WILD, Project Wet, Project Learning Tree.
-Enhance educational programs at public zoos, aquariums, museums and state parks.
-Develop or enhance facilities at wildlife viewing sites and update state viewing guides.
-Provide outdoor skills workshops.
-Promote economic development through wildlife viewing and other outdoor recreation.
-Support wildlife festivals and wildlife viewing special events.
-Promote volunteer stewardship of recreation sites.

Puget Sound Action Team

From Puget Sound Water Quality Action Team 1997-1999 Work Plan

-WDFW shall develop and implement a coordinated program of public education emphasizing the importance of wetlands and habitat to fish and wildlife. The program will build on existing aquatic education programs and complement current salmon recovery and watershed initiatives.

Salmon Recovery Plan

From Extinction is Not an Option - A Statewide Strategy to Recover Salmon.

-The overall mission is to *inform, build support, involve and mobilize citizens* to assist in restoration, conservation and enhancement of salmon habitat. This will be accomplished by working with tribal and local governments, local schools and colleges, associations, and other groups statewide as well as within regions and by sectors. The education and outreach ideals outlined in the agriculture, habitat and enforcement/compliance sections of the Statewide Salmon Strategy will be integrated into this effort. The major objective of this strategy has been to organize a statewide coalition of individuals, groups, associations and governments that will work together to educate the public about salmon recovery.

The three main goals are:
-Inform the public about the condition of steelhead and salmon and how the public can be involved in their recovery.
-Inform the public about the impacts of the ESA listed salmon, steelhead and trout in their watersheds.
-Promote and enhance volunteer resources.

Recommended Strategies

Washington Fish and Wildlife Commission

From Washington Fish and Wildlife Commission Vital Few Tasks for 1998.

Task: -Develop watchable fish and wildlife opportunities.
-Identify watchable fish opportunities for rivers, lakes, marine protected areas, and marine reserves for seashores and SCUBA by January, 1999.
-Initiate three major wildlife viewing projects, with at least one on each side of the state by July, 2002.
-Develop Living with Bald Eagles traveling exhibit by October, 1999.
-Implement Adopt a School by January, 1998.

Task: -Launch public outreach campaign through Washington Outdoor Women, multicultural diversity, and fairs and exhibits.
-Develop 1998 work plan for participation in 28 fairs and exhibits, including a booth/exhibit at a major fair or sportspersons fair in each region by December, 1998.
-Co-sponsor youth outdoor fair in Seattle at International Sportspersons exposition by February, 1998.
-Create Washington Outdoor Women program in coordination with volunteers by June, 1998.
-Establish multi-cultural environmental education project in urban schools by June, 1998.

WDFW Salmon in the Classroom Evaluation

Program Evaluation: Salmon in the Classroom 1991-1995:

This program evaluation identified the following recommendations for program improvement:
-Immediately assess and evaluate the impact of the Wild Salmonid Policy (WSP) on the future of educational salmon rearing projects.

-Other WDFW Ecosystem Education programs (Salmon in the Classroom, Marine Education, Project WILD and Aquatic WILD, NatureMapping and Angler Education) should communicate and coordinate functions and activities in partnership to better meet constituent needs.

-Emphasize and expedite development of additional grade level appropriate curricula.

-Work with Fish Management/Hatcheries program staff to encourage and establish continuing relationships between schools and local hatcheries, to identify hatchery-site environmental educational interpretive opportunities, and to develop materials which explain hatchery functions in relation to the Wild Salmonid Policy.

-Actively seek local volunteers and community groups such as Regional fisheries Enhancement Groups, Trout Unlimited chapters, and the Senior Environmental Corps to partner and mentor classroom projects.

-Pursue funding and community partnerships to expand program availability and increase the development, production, and distribution of educational materials.

-Evaluation should be repeated during 1997-1998.

IAFWA Latino Outreach

From Latino Outreach by the International Association of Fish and Wildlife Agencies

The rapid growth of the Latino population in Washington represents an opportunity for WDFW to reach this under-served group. The International Association of Fish and Wildlife Agencies (IAFWA) recommends the following strategies to recruit Latinos to sports fishing (Although IAFWA's focus is specifically geared to sports fishing, these strategies are applicable for targeting Latinos for other WDFW activities as well):

-Make sure the Latino culture is addressed when developing outreach.

-Emphasize closeness of the family, and how the activity brings the family together.
-Continually search for ways to conduct on-going education within the fish and wildlife organization.
-Find ways for the organization to initiate contact.
-Become a part of the Latino cultural network.
-Determine whether translation of outreach material and/or program advertisements is necessary. If so, make sure materials are well distributed and avoid translation pitfalls.
-Make community research the foundation of any outreach

program.
-Consider implementing urban fishing programs, which tend to be the best vehicle for reaching minority groups and increasing participation.
-Maintain proper follow-up, the seal of success for any outreach program.

Puget Sound Action Team

The following recommendations are from the Puget Sound Water Quality Management Plan

-*Watersheds and Fish Habitat:* The Department of Fish and Wildlife shall convene a committee to develop a model watershed interpretive program at hatcheries that are easily accessible to visitors.

-*Shellfish*: WDFW shall convene a committee to develop an interpretive program at an appropriate location in Puget Sound.

-*Wildlife Habitat Education:* WDFW shall implement a program to introduce wildlife education at state parks and other recreational settings. The program shall promote understanding of the habitats for marine, freshwater and upland wildlife by adapting hands-on activities from existing programs, many of them from K-12 curriculum such as Project WILD of WDFW, FOR-SEA of the Poulsbo Marine Science Center, and programs from the Office of Environmental Education. WDFW shall work with Washington State Parks and Recreation Commission to provide training to park rangers. WDFW and State Parks shall provide stipends for facilitators of the various programs, such as Project WILD, so that teachers may be trained to implement these programs on weekends and in the summer.

-*Habitat Protection:* WDFW shall coordinate with the educational resources of the departments of Ecology and Natural Resources to provide education on habitat protection and enhancement to developers, realtors, contractors, and business and industry.

Puget Sound Water Quality Action Team 1997-1999 Work Plan

-WDFW shall develop and implement a coordinated program of public education emphasizing the importance of wetlands and habitat to fish and wildlife. The program will build on existing aquatic education programs and complement current salmon recovery and watershed initiatives.

Salmon Recovery Plan

From Extinction is Not an Option - A Statewide Strategy to Recover Salmon.

The process and/or methods identified include:
-Organize county, regional and statewide meetings to identify groups and organizations working on salmon recovery and other complementary environmental issues.
-Provide an opportunity for information and resource exchange. Identify gaps and other information needs and develop ideas to address those.
-Identify and contact volunteer groups involved in recovery and/or other environmental activities and assess skills, resources and needs.

Individual tasks include:
-Complete a detailed education and outreach strategy working with other individuals, groups, organizations, associations and governments statewide.
-Serve as a clearinghouse to identify and help coordinate efforts through the exchange of materials, resources, and activities with these groups.
-Identify the groups by watershed, assess their needs and identify their resources.
-Identify people to serve as points-of-contact within watersheds and regions to facilitate information sharing.
-Develop, as needed, education materials that provide the basics on salmon recovery and can be modified to meet area or sector needs.
-As needed, organize and provide training-of-trainers materials and workshops.
-Develop a speaker's bureau.

Effectiveness measures will be developed and monitored based on the following outcomes:
-An informed public that understands
    -the condition of the wild steelhead and salmon
    -the consequences of having ESA listed salmon in their watersheds
-A mobilized public that
    -works in support of salmon restoration
    -contributes resources toward salmon restoration
    -changes current practices and behaviors to support restoration and preservation

APPENDIX III: CURRENT EDUCATION PROGRAMS

(as of July 1, 1998)

Educational offerings are provided by all department programs, to some degree or another. A short description of each existing educational component (as of July 1, 1998) follows the chart. The included table, based on the Knapp model, summarizes these components and identifies the level of **behavior change** and **audience** for which each is PRIMARILY intended. It is understood that many educational components do cross behavior levels and reach multiple audiences.

This analysis of current educational offerings reveals that most of the traditional education efforts of the Information and Education staff are intended for entry-level experiences, generally for large numbers of people. A few are designed to progress to ownership and empowerment levels. However, most of the ownership- and empowerment-level activities are conducted by staff from the resource (non-I&E) programs, and generally affect smaller numbers of people.

*Managed by staff that fall within a collective Information and Education Program, irrespective of current organizational structure.

Behavior Level	Elementary Students	Secondary Students	Citizens (1=Novice; 2=informed)
Systems Understanding (Entry-Level)	Angler Education* Salmon in the Classroom* Project WILD* Education Trunks* Hatchery Tours*	Information requests Project WILD	Public Affairs activities (news releases, videos, radio PSAs) 1, 2 * Washington Outdoor Women1,2 * Fairs, exhibits, expositions 1,2 * Publications/Brochures 1,2* Telephone calls 1,2 Endangered species materials 1,2 Presentations 1,2 Posters 1,2 Multicultural Education1
Environmental Inquiry (Ownership)	Marine Fish and Shellfish Education* NatureMapping* Nature in the City* WILD School Sites	Hunter Education* JETS WILD School Sites NatureMapping	Wildlife/Watershed Stewards 1,2* Internet 1,2* Public Disclosure 2* Public Involvement 2* Regulations pamphlets 2 Public meetings/hearings 2 Personal contacts 1,2 Habitat Demonstration Project 1,2 Eagle Watch Program 2 Back Yard Bird Surveys 1,2 Volunteer surveys 1,2 Washington Conservation Corps 2 Interpretation 1,2 Watchable Wildlife Program 1,2 Goose hunter certification 2 Multicultural Education1 Beach walks
Taking Actions (Empowerment)	WILD School Sites NatureMapping	Job Shadowing WILD School Sites NatureMapping	Volunteer Cooperative Projects 2 Regional Fisheries Enhancement Groups 2 Advanced Hunter Education 2* North of Falcon Process 2 Backyard Wildlife Sanctuary 1,2 Wildlife/Watershed Stewards Program 2 Volunteer enforcement groups 2 Technical Assistance 1,2 Workshops 1,2 Priority Habitats and Species 2 Backyard Bird Surveys2 Multicultural Education1

The following pages contain a summary of the Washington Department of Fish and Wildlife's Outreach and Education programs by division, as of July 1, 1998, as categorized by the previous audience chart.

Administrative Services Division

Public Affairs

Public Affairs provides advice to management and prepares public involvement and information strategies for major Department issues. Media relations, public involvement, multi-media production, writing, and presentation development are the primary functions of Public Affairs for both the Department and the Fish and Wildlife Commission.

During the calendar year Public Affairs produces approximately 200 news releases, 12 newsletter columns for the director, several speeches, 25 fact sheets, weekly Governor's alerts, and 1,000 news clippings. Editorial board meetings, news media interviews and media events in the field are coordinated. Seventy-five radio stations use Department produced public service announcements. These messages are carried on the state's radio stations 23,400 times annually. In addition to other multi-media projects, Public Affairs provided 9 videos for education, training, and information.

Volunteer Co-op Projects

To achieve the twin goals of enhancing fish and wildlife and informing citizens of their natural resource heritage, the Department

issues annual grants. Funds are administered to volunteers, schools, community groups and landowners. Their projects enhance fish and wildlife habitat, create interpretive and educational displays, improve landowner relationships, and promote outdoor ethics and survival skills.

$429,550 of Aquatic Lands Enhancement Account (ALEA) funds have been committed to 39 projects representing an estimated 71,500 volunteer hours with an estimated value of $1,072,500. An estimated $771,765 in other funds was provided by participating volunteers. The average grant awarded was $11,000.

Regional Fisheries Enhancement Groups

The program's goal is to restore and enhance salmon in Washington. To accomplish this, the agency directly funds volunteer groups and provides technical assistance. With these resources, volunteers can rehabilitate salmon streams, unblock or replace culverts that stop salmon passage, and school children and community groups can raise salmon and enhance their habitat.

Twelve volunteer groups work to revegetate streams, plant trees, clean up or replace culverts, provide passage to unused habitat, fence off livestock from streams or rivers, educate their communities about the need for clean water, raise and release fish, and research further methods to restore salmon to Washington.

In 1997, Regional Fisheries Enhancement Groups contributed 30,000 hours of labor, at an estimated value of $375,000 to benefit salmon and salmon habitat. Volunteers raised more than $3 million in contributions and donations to match (and exceed) the state's share of $458,000. An estimated 16 miles of streams were restored, cleaned or opened up to salmon passage. Volunteers completed 149 projects to enhance salmon.

Angler Education

The angler training and recruitment program reached more than 6,320 students in 67 classes in 18 counties in 1997. A total of 350 volunteer instructors donated 3,129 hours in classroom and fishing activities, mostly in the urban Puget Sound area. This program trains the trainers to multiply its effectiveness. Recent initiatives include teaming with Rotary Club International, Free Fishing Weekend Hot Spot Lakes, and Kids Fishing Clinics at boat and sports shows.

Salmon in the Classroom

This program provides 600 55-gallon aquariums strategically placed in school classrooms across the state. Teachers and their students rear the salmon and trout eggs through fry, alevin and fingerling size, while conducting educational programs about salmon, fish, habitat, watersheds, and local stream protection. Some school districts have adopted the program district-wide, making salmon a component of the science curriculum for 4th, 5th and 6th graders. Most notable in the effort is the Renton School District, where every new elementary school is built with a flow-through aquarium installed.

Project WILD

Project WILD and Beyond trains teachers to lead educational activities at the watershed level, showing students how to maintain and restore streams and upland habitat while learning about fish and wildlife. An interagency initiative with the Office of the Superintendent of Public Instruction and a Project WILD grant trained 870 teachers in 20 school districts on using fish and wildlife in education reform, bringing the total for the past five years to 3000 teachers and 50,000 students.

Nature-Mapping

To connect students and volunteers with their real-world resources through actual data gathering and monitoring, Nature-Mapping was jointly developed by the Department and the University of Washington's GAP Analysis Project. Data collection forms and training in how and what kind of data to collect on terrestrial habitats and wildlife have been conducted. A second protocol, Nature-Mapping for Fish and Streams to collect data on fish and habitat features of streams has been completed. There are more than 500 teachers and 141 participants directing an estimated 30,000 students in Nature-Mapping activities. More than 16,000 wildlife records were submitted in 1997, equating to at least 30,000 acres mapped for wildlife.

Master Watershed Stewards

This program is an interagency partnership, initiated by Project WILD, with Washington State University Cooperative Extension to train adult volunteers for up to 100 hours on skills to restore watersheds for clean water and habitat for humans, fish and wildlife. Stewards volunteer back these hours on projects which have a positive impact on fish and wildlife.

Education Trunks

Salmon and Wildlife Education Trunks that contain props, Project WILD education activities, slides and posters for presentations to youth and adults are prepared and available to employees.

Marine Fish and Shellfish Education

The Marine Fish/Shellfish Education Program began as a razor clam license proviso for education on reducing wastage and over-limits on razor clams. It now encompasses all marine fish and shellfish, including the entire watershed, estuaries and intertidal zones. The program coordinator works with all marine interpretive centers and state parks, trains volunteers on tide walk issues, and conducts more than 150 classroom visits, ten civic group presentations and 20 summer low tide classes per year. New initiatives include special outreach for Asian and Native American populations who utilize the marine and intertidal resources.

Hunter Education

The goal of Hunter Education is to train potential and current hunters about safe and ethical hunting. The strategy is to recruit and use skilled hunters as volunteer instructors to train new hunters. The volunteer instructors offer training classes in all 39 Washington counties on proper hunting methods, firearm safety, hunting ethics, and state regulations governing hunting. The Department staff recruit, inform, supply and evaluate the cadre of 700-plus volunteer instructors and inform the public of available courses. In 1997, 23,934 instructor hours were donated to Hunter Education.

Washington Outdoor Women

Washington is the last fish and wildlife agency in the country to form a partnership with women interested in the outdoors. The specific strategy is to teach women a variety of outdoor skills, such as fishing, hunting, outdoor ethics, and survival, through weekend workshops. By teaching in locations where participants immediately practice new skills, they gain quick confidence in experiencing and using the outdoors. This strategy may assist them in introducing their children to outdoor activities and encourage more family experiences in the outdoors. Twenty-five volunteers established their own non-profit organization to organize, staff and raise funds for two, two-day workshops for 1998. Discontinued due to funding cuts in 1998.

Fairs and Exhibits

The specific strategy is to increase Department presence at fairs and trade shows with easy-to-understand messages and practical applications to save wild salmon, preserve our hunting heritage, and take better care of Washington's natural resources. Two primary themes have been developed for 23 fairs in 1998 with representation in each of the Department's geographic regions.

Internet

The Department maintains a Website with new information added weekly. The goal is to provide more interactive opportunities through our Website, especially for children. Total average monthly visits to the Website is 12,098. A user survey (November 1997) shows that the typical user visits the site frequently (58% weekly or daily); considers himself/herself a recreationist looking for information on rules, regulations and changes (57%) and indicated that the site provided them the information they were looking for (63%). Comments regarding what they liked best about the site are: news releases, regulations and regulation changes, and all new and timely information.

Nature in the City

The specific strategy to bring nature into the city is to select five urban schools and offer a curriculum that combines natural history and environmental studies with basic learning requirements. Students will have an opportunity to visit wildlife areas to understand how the areas are operated, to become aware of future

employment and recreation opportunities, and help restore a stream in their own community.

Public Disclosure
The public disclosure officer coordinates with Department programs to provide public records in accordance with RCW 42.17.250. Types of records requested include: landing records of commercial fishers (individual records, tribal and non-tribal fleet statistics), lists of names and addresses of license holders (commercial fishers, recreational fishers, hunters), salmon and steelhead escapement and release data for Washington streams, hydraulic permit approval files, Fish and Wildlife Commission documents, Department correspondence files, files for specific projects (duck stamp files, Mission Ridge files, problem wildlife files, etc.)

Publications Services
Publication Services provides products to both internal and external customers, completing approximately 550 projects a year. In coordination with all internal programs, this work unit designs and produces publications that are mandated by statute as well as slide presentations, maps, overheads, fact sheets, signs, kiosks, displays, technical reports, instructional materials, fliers, brochures, posters, and certificates for volunteers.

Fish Management / Hatcheries Division

North of Falcon Process
Five meetings February-April each year to develop a state and tribal fishing policy with major public input. Up to 100 people representing various organizations (not including WDFW staff or tribal representatives) attend these meetings.

Fishing Regulations Pamphlet
Various issues are communicated to the public through this publication. There has been an effort to involve the public in the process of developing these regulations. There is a How to get involved section on the inside cover and there are currently 1500 people on the mailing list largely due to this effort. 600,000-800,000 copies/year are printed.

Public Meetings/Hearings
These meetings and hearings usually revolve around developing sports fishing regulation processes. 20-30 meetings/year. .

Personal Contacts in the Field
Field staff sampling fish catches for data are asked questions about Washington Department of Fish and Wildlife that are not necessarily related to their particular task. They are the front line in communicating with the public.

Hatchery Tours
Tours given to organized community groups and walk-ins off the highway. 50 hatcheries x one 1-hour tour monthly = 600 hours.

Telephone Calls for Information
In many communities in Washington, the telephone number for the local hatchery is the only number for WDFW in the telephone directory. Hatchery staff thus field many telephone calls with requests for Departmental information not necessarily related to hatcheries.

Wildlife Management Division

Urban Wildlife Program
This program employs three full time positions having these four goals: 1)Protect, preserve and perpetuate wildlife habitat, populations and diversity in urban areas; 2)Determine distribution and abundance of urban wildlife; 3)Increase public knowledge and respect for ecological principles and the value of wildlife; 4)Increase wildlife recreational opportunities for the urban public. The urban biologists actively educate the urban public, county and city planners and commissioners. They serve as primary resource contacts and consultants for the Nature-Mapping program; attend fairs and workshops; lead environmental education workshops; and give presentations and lead interpretive field trips throughout the year. In addition, this program frequently develops and distributes informative and educational wildlife related brochures.

Backyard Wildlife Sanctuary program
Provides certification for people who promote good wildlife habitat on their property. 7,000 properties have been certified to date statewide. Program is promoted at several events throughout the year across the state, with personal assistance from westside or eastside urban wildlife biologists. As part of this program, the Crossing Paths newsletter is distributed to the 7000 participants twice yearly.

Habitat Demonstration Project
Nine sites statewide to demonstrate techniques for improving wildlife habitat. Techniques such as the use of nest boxes and native plants are modeled. General public and developers are encouraged to use these sites as models for their own property.

Wildlife Stewardship Program
New program in which 25 landscape architects, nursery workers, and other experienced people go through a 10-week training to learn landscaping-for-wildlife techniques. These 25 people will then return 50 hours of time teaching what they have learned to the general public by way of slide shows, consultations, etc. .

Volunteer Butterfly Surveys
A two year old program that identifies butterfly species using certain Seattle parks and Spokane natural areas.

Eagle Watch Program
Program in which 15 eagles' nests in urban areas are monitored by volunteers for productivity. .5 FTE, $30,000.

Backyard Bird Survey
500 volunteers ***to date*** are involved in conducting surveys of winter birds and band-tailed pigeons in their backyards.

Neotropical Migrant Bird Banding, Raptor Surveys, Herp Surveys
Volunteers are coordinated by eastside urban wildlife biologist each year to conduct these surveys. Over 800 hours of volunteer hours are accumulated each summer.

Urban Breeding Bird Surveys
On the westside, every two years a survey of breeding birds in six locations is conducted utilizing 20 volunteers. On the eastside, five areas in the Spokane area are surveyed each year by volunteers.

Endangered Species Program
Part of this program includes producing brochures for the public on what species are endangered in Washington and what WDFW is doing to help.

Telephone Calls for Information
Wildlife Management Division personnel respond to 400-500 requests per year for information. Many of these callers are scientists looking for information to complete Environmental Impact Statements.

Watchable Wildlife Program
This program develops opportunities for the public to view and appreciate native fish and wildlife in Washington. As part of this effort, WDFW works with Falcon Press to publish the Washington Wildlife Viewing Guide and produces 4-8 wildlife interpretive projects per year. Additionally, the program attends four major wildlife festivals per year.

Track-A-Caribou Program

New project in conjunction with Project WILD in which interdisciplinary Internet and classroom activities will allow middle school students to investigate caribou, caribou habitat and the complexities of wildlife management.

Presentations
Personnel in the Research Division make an average of 50 presentations annually to sports groups, scientific groups, environmental organizations and classrooms.

Public Hearings
The Wildlife Management Division holds 20-30 public hearings per year. An average of 100-300 people attend each hearing.

Certification Class
In order to hunt Brant, Snow Geese, or Canada Geese, hunters are required to participate in a certification class that teaches identification techniques. 300 people/year attend.

Hunting Regulations Pamphlet

Brochures
The division produces pamphlets to inform the public on various wildlife issues. The most recent pamphlet dealt with dangerous wildlife issues.

Hunting Shows/Trade Fairs
Several biologists across the state help staff agency booths at annual shows that feature hunting information, including the Inland Northwest Wildlife Council's Bighorn Outdoor Sports Show in Spokane, the Western Washington Sportsmen's Show in Puyallup, and shows in Yakima, Tri-Cities, and other places.

Enforcement Division

The Department of Fish and Wildlife, Enforcement Program, currently employs 147 commissioned personnel who make over 300,000 public contacts annually. Each Enforcement Officer devotes approximately 3% of his/her time performing outreach and education within their communities, making presentations to sports clubs, civic organizations, school groups, etc.

Fish and Wildlife Officers oftentimes find themselves in the role of educator. They talk to members of the pubic about laws and regulations, hunting and fishing prospects, ethics, stewardship, habitat, and conservation. In addition to their law enforcement duties, i.e., conducting investigations, compiling evidence, writing case reports, and testifying in court, they responded to over 3,000 human and wildlife conflicts in 1998. As Washington's population continues to spread into outlying areas, officers will continue to focus on educating landowners, stakeholders, and residents about deer and elk damage, as well as encounters with dangerous wildlife.

Volunteer Enforcement Groups
The Enforcement Program has approximately 25 volunteer Reserve Officers who assist fully commissioned Regional Officers in routine field operations. Additionally, organizations such as the Washington State Archery Association, recently stepped forward and asked how they could become actively involved in assisting officers. Under the guidance and direction of the Regional Captain, Eyes in the Woods is a volunteer group that is growing and reporting fish and wildlife violators. Stream Watch and Unit Watch are still in the planning phase.

Outdoor Recreation Shows
Prior to budget cuts experienced by the Program in 1998, Officers were able to devote more time toward staffing agency booths at a number of Fish and Wildlife trade shows across the state. These included the Inland Northwest Wildlife Council's Bighorn Outdoor Sports Show in Spokane, the Western Washington Sportsmen's Show in Puyallup, the Puyallup Fair, and shows across the state. Regrettably, the reduction in officers and a shift in priorities has reduced the Officer's ability to participate in these important activities.

Lands and Habitat Division

Interpretation
The Lands Division administers 25 major wildlife areas in the state, almost all of which do some form of environmental interpretation. These areas get 1.2 million visitor days/year for non-consumptive activities. Mount St. Helens Wildlife Area gets 500,000 visitor days/year with interpretation done by Weyerhaeuser, Cowlitz County and the U.S. Forest Service. Oak Creek Wildlife Area gets 300,000 visitors/year and Skagit Wildlife Area gets 150,000-200,000 visitors/year.

Washington Conservation Corps
The Lands Division administers the Washington Conservation Corps, a young adult employment and training program. The program reaches 50 young adults ages 18-25 per year and focuses on accomplishing stewardship work projects on Department Wildlife and Access Areas. In addition to on-the-job training, members receive a variety of classroom training to help them become more employable upon completion of the program.

One-On-One Contacts with Public
There are 40-70 staff in the Salmonid Screening Habitat Enhancement and Restoration Division that constantly make contact with the public on the ground during construction project development to educate them about why fish passage, habitat restoration, and screening are necessary.

Technical Assistance
The Environmental Engineering Division provides technical assistance to the public on specific projects that deal with fish passage, streambank protection, flood hazard management, and habitat restoration. These staff provide assistance for 250 projects/year.

Publications/Guidelines
200 copies/year of fishway passage design guidelines are distributed to county commissioners, other agencies, consultants, volunteer groups and individuals each year. The division is currently in the development stage of streambank protection guidelines. 200 people have participated in workshops to develop these guidelines.

Workshops
The Lands Division conducts the following workshops:
-Culvert Fish Passage Design for county engineers, Department of Transportation, and Consultants. 4 workshops/year, 30 people/workshop
-Screen Workshops - 2 workshops/year, 25 people/workshop
Rootwad and Willow Seminars (streambank protection, flood hazard management, gravel removal, etc.) for biologists and volunteer groups. 300 people/year

Videos
The Salmonid Screening Habitat Enhancement and Restoration Division has made two videos on fish passage that are shown in various forums.

Priority Habitats and Species
This program serves to provide comprehensive information on important fish, wildlife and habitat resources in Washington to local governments, state and federal agencies, private landowners and consultants, and tribal biologists. One important educational aspect of this program is data sharing of wildlife occurrence data with city and county planning departments for use in Growth Management Act planning and enforcement.

Puget Sound Technical Assistance Unit

This unit provides technical assistance to local jurisdictions to integrate agency concerns into planning, development, and other actions affecting fish and wildlife habitat in the Puget Sound Basin. Biologists in the unit support implementation of the Puget Sound Water Quality Work Plan through participation on watershed planning committees, review and comment on Growth Management Act plans and revisions to Shoreline Master programs, and working with local planning staffs and conservation districts. Biologists in the unit are also currently working on producing a slide show on river processes and a video on marine bulkheads.

Area Habitat Biologists

Area Habitat Biologists perform educational functions in one form or another nearly 100% of their time. They spend about 60% of their time on Hydraulic Project Approval work, 10% on Forest Practices, 10% on State Environmental Policy Act reviews and comments, 10% on Growth Management Act Planning, 5% on a variety of watershed planning efforts, 3% on non-regulatory consultation, and 2% on direct educational outreach (schools, sport clubs, etc.) using a variety of educational materials.

Gold and Fish Program

The Habitat Division produces a booklet entitled Gold and Fish that serves to inform prospectors about fish-friendly prospecting techniques and serves as the Hydraulic Project Approval.

Posters, Pamphlets, etc.

Occasionally Priority Habitat and Species staff produce posters or pamphlets to inform the public about various issues. Examples include a pamphlet about cats and wildlife and a poster about bats.

Agricultural Exposition

Several biologists from the eastern and Columbia Basin regions staff an agency booth at this annual show in Spokane totaling at least six days of time.

APPENDIX IV: PREVIOUS EDUCATIONAL PLANS

Aquatic Education Plan

From WDFW Aquatic Education Program 5-Year Plan 1992-1997
Goals:
-Increase the understanding and awareness of the aquatic environment and the need for clean water.
-Explain fish management concepts.
-Promote a code of ethics for anglers.
-Recruit new anglers.

Secondary Goals:
-Stimulate more fishing trips by new and current anglers.
-Stimulate interest in under-utilized species.
-Safety.
-Educate anglers on effective fishing techniques.

Audiences:
-Kids.
-Non-affiliated sportsmen/beginning anglers.
-Teachers.
-Non-sporting public.

First Merger Plan

From the first plan of the newly-merged Washington departments of Fisheries and Wildlife, 1993.

Goal:
-Provide resource environmental education that maintains and improves the quality of habitat for Washington's fish and Wildlife and to enhance the user's ability to enjoy Washington's wildlife ethically and responsibly through recreation.

Objectives:
-To change the public's behavior through education to maintain or improve fish and wildlife populations.
-Based on agency priorities and needs, provide services to meet the needs of wildlife, fish and habitat.
-To develop and gain support from constituents, and to provide services to them.

Value:
-Developing a knowledge and understanding of the resource by being involved with the resource through data collection, monitoring and habitat enhancement.
-Developing a valuing of the resource and building ethics by being involved with the resource.
-Developing skills to take appropriate ecomanagement action (including enhancing habitat for wildlife.)
-Developing empowerment by offering students/citizens opportunities to actually become involved with habitat and wildlife issues.
-Providing the tools to build and sustain citizen empowerment to make responsible decisions and act on behalf of wildlife.

Audience:
-Citizen groups
-Sports groups (hunters and fishers)
-Environmental groups
-Local Governments
-State resource agencies
-All schools; youth and higher education
-Business and industry
-Non-traditional populations
-Tribal groups

Ecosystems Education Plan

From Strategy for Ecosystems Education Program, February 1995

Goal:
-To provide watershed/ecosystem environmental education which results in protecting and improving the quality of habitat for Washington's fish and wildlife.

Objectives:
-Impart public environmental ethic so that citizens take responsibility for their own actions and adopt behaviors consistent with providing quality habitat for fish and wildlife.
-Create hands-on opportunities for citizens to participate in watershed management that address agency priorities and data needs.
-Work cooperatively with other WDFW programs to establish links between ecosystem education, volunteerism, public involvement and agency goals and objectives.
-Establish partnerships with federal, state, local and tribal governments, educational entities, communities, and volunteers to promote the protection of fish and wildlife resources through responsible watershed management.
-Promote community-based resolution of resource issues by establishing an informed and supportive front line of representatives.

APPENDIX V: SFBPC SURVEY

The Sport Fishing and Boating Partnership Council undertook a comprehensive national project to identify solutions to declining participation in recreational fishing and boating. An executive summary from meetings held throughout the country in January and February, 1998, identified the following top 15 constraints to fishing and boating participation:

1. Lack of time, competition for time, and complexity of schedules
2. High cost of recreational boating.
3. Negative images of resource and water quality (dangers of eating fish).
4. Negative impact of animal rights information on fishing.
5. Lack of identified messages that recognize market changes and work for each market segment.
6. Insufficient process to educate current fishing and boating participants or to recruit new ones.
7. High cost of angling participation — licences/equipment/tax.
8. Insufficiently educated stakeholders to address new recreational fishing and boating activities.
9. Public perception that water safety problems are worse than they actually are.
10. Quality and adequacy of facilities/access to support recreational fishing and boating activities.
11. Perception of inadequate enforcement of existing recreational fishing and boating and environmental regulations.
12. Lack of interjurisdictional cooperation and communication (specially noted by tribal representatives).
13. Increased resource competition from alternative water users.
14. Habitat degradation.
15. Controversy over fish management philosophy and practices.

The Sport Fishing and Boating Partnership Council provided the following situation analysis in it's draft Strategic Plan for the National Outreach and Communication Program:

1. Demographic changes are problematic for increased participation.
   A. Minority populations, with low rates of participation, are growing three times faster than Anglo populations.
   B. Other populations with low participation rates are also among the fastest growing (e.g. older Americans and those who live in urban areas).

2. Motivations between and among boaters and anglers are varied.
   A. Anglers' motivations vary from catch-oriented to socially-oriented.
   B. There is a misconception that there is a typical boater or angler. This limits participation by non-typical segments.

3. Boating and fishing are social behaviors.
   A. Exposure early in life is important — 95% of adult anglers fished as children.
   B. A social network is needed to recruit and retain adult boaters and anglers.
   C. Education is needed to increase skill levels and enjoyment and to foster long-term participation.

4. Among the most important constraints to boating and fishing are:
   -Perceived lack of time and/or money
   -Lack of access to (or knowledge of) facilities
   -Negative images of aquatic resources and water safety
   -Inconsistent delivery of satisfactory boating and fishing products, services and facilities.
   -Lack of a consistent positive image of boating and angling.

APPENDIX VI: NEAR-SHORE HABITAT LOSS
IN PUGET SOUND

The following are the educational needs identified in the recent document Near-shore Habitat Loss in Puget Sound.

-Hire education specialist to carry out the nearshore habitat education recommendations and serve as a contact for nearshore education throughout Puget Sound.
-Develop a briefing packet for decision-makers that describes ways to protect nearshore habitats.
-Sponsor educational presentations, workshops and boat tours for local commissioners or council members.
-Sponsor regional workshops for local planners to provide information on technical habitat issues.
-Develop a stewardship tool kit.
-Sponsor articles in newsletter.
-Sponsor workshops or presentations at planning conferences about nearshore habitat issues.
-Encourage and fund the creation of citizen volunteer groups to help teach citizens and property owners to be good stewards of their shorelines.
-Develop a Shoreline Property Owners Stewardship guide.
-Develop brochures, fact sheets or white papers on specific nearshore habitat and shoreline stewardship issues.
-Sponsor regional workshops that inform shoreline property owners about options for managing their land.
-Develop regionally-specific posters about shoreline habitat loss.
-Develop targeted technical assistance materials that describe construction techniques and practices that minimize impacts to nearshore habitat.
-Sponsor workshops for bulkheaders, developers, architects and associated construction trades to share information on construction practices that minimize impacts to nearshore habitat.
-Develop an annual state of the shoreline report.
-Sponsor workshops in local communities where a pending local decision may affect nearshore habitat.
-Develop public service announcements that celebrate the wonders of Puget Sound shorelines and inform people of the current threats to nearshore habitat.
-Use media where appropriate to educate citizens about the importance of nearshore habitat.
-Develop a multilingual poster to display at marinas, outdoor/sporting goods stores, parks and other public places on the importance of nearshore habitats.
-Sponsor regional conferences on nearshore habitat protection.

APPENDIX VII: NON-INDIGENOUS SPECIES REPORT

The following are recommended actions to address marine non-indigenous species (NIS) issues in Washington:

-Establish an NIS Education Committee with Washington and British Columbia.
-Develop an NIS media show for use by WDFW, environmental groups or teachers.
-Develop a list of existing education materials on NIS.
-Prepare NIS fact sheets, wallet identification cards on cordgrass and green crab.
-Translate selected educational materials into various non-English languages, and distribute or display as appropriate.
-Provide NIS information and educational briefings for US Customs officials.
-Develop a list of laboratories, universities, aquaria, pet and aquarium stores, aquatic plant nurseries, marine labs, live seafood markets or shippers, and marine bait shippers which may handle, store or display marine NIS or packing material from NIS shipments.
-Develop and distribute educational material and guidelines for research institutions, private laboratories, holding NIS.
-Develop and distribute brochures, posters, and other educational materials for public aquaria and pet and aquarium stores which describe potential NIS issues and how to properly dispose of NIS.
-Develop displays for boat launches on potential NIS issues and how to prevent boats and boat trailers from spreading NIS.
-Develop displays for ferries, public aquaria, museums, nature centers, and marine labs, describing the potential problems associated with NIS and tell the public what they can do to prevent the spread of NIS.
-Put NIS information on existing web sites.
-Write magazine articles about NIS issues for newsletters and magazines.
-Develop a fact sheet on NIS to be sent to boat owners with annual renewal.
-Support a workshop on NIS for resource managers, agency staff, researchers, general public, shellfish growers.
-Convene a West Coast symposium on marine NIS.
-Develop a NIS curriculum for schools.

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